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Exploring non-resident fatherhood and child well-being in the early years using the Growing Up in Scotland study

Sarah Rogers

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Declaration

I declare that this thesis has been completed by me, is my own work, and has not been submitted for any other degree or professional qualification.

Sarah L. Rogers

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Abstract

Levels of non-resident parenthood in Scotland are substantial. The 2011 Scottish Census indicated 28 per cent of all families with dependent children to be lone parent households. Whilst non-resident parenthood is not synonymous with non-resident fatherhood, 92 per cent of such households were headed by the mother (ONS, 2014). Child well-being in non-resident father households is an issue of concern amongst policy makers and practitioners and both law and policy appear to operate on the principle that the maintenance of non-resident father-child relationships is generally conducive to child well-being. Whilst there is evidence to suggest the well-being of children in non-resident father households is typically poorer than their contemporaries in two natural parent households (Amato and Keith, 1991; Amato, 2005), and indeed evidence to suggest non-resident father involvement may benefit child well-being (Amato and Gilbreth, 1999; Adamsons and Johnson, 2013), the existing research has a number of limitations. Firstly, studies have typically adopted narrow conceptualisations of child well-being. Secondly, few studies have sought to disaggregate the total effects of non-resident fatherhood to consider both those transmitted directly and indirectly via mediating variables. Finally, increasing numbers of non-marital births coupled with evidence suggesting cohabiting relationships to be at an increased risk of breakdown in children's early years compared to marriages (Greaves and Goodman, 2010), has culminated in increasing levels of early years non-resident fatherhood, an issue which has received less attention in the literature.

Using data from the Growing Up in Scotland study this research explores associations between non-resident fatherhood and child well-being and the potential pathways through which such associations may operate. The research conceptualises child well-being as a multi-dimensional construct comprising four key domains: social, emotional and behavioural development, cognitive development, general health and material resources and uses structural equation modelling to consider the extent to which firstly, living in a non-resident father household, and secondly, non-resident father involvement is associated with child well-being directly, or indirectly, via household income, maternal mental health and parenting behaviours.

The results show that, relative to two natural parent households, child well-being across each of the four domains is poorer in non-resident father households headed by a lone mother but not in those where the mother has re-partnered. Only one statistically

significant direct association was found in the domain of material resources with the results suggesting much of the negative association to be transmitted indirectly via household income and maternal mental health. For those children who were reported as having some form of contact with their father, the results indicate paternal involvement to be indirectly associated with fewer social, emotional and behavioural difficulties via maternal mental health. Finally, consideration of the circumstances and characteristics associated with the maintenance of contact and levels of paternal involvement revealed maternal relationship status to be an important correlate of both contact and involvement whilst parental relationship history and circumstances surrounding the pregnancy were additionally found to be important correlates of contact.

This thesis argues that simple dichotomies of father presence / absence can serve to mask the complex network of relationships underlying associations between non-resident fatherhood and child well-being. It also argues that child well-being in non-resident father households would benefit from policies which seek to alleviate financial hardship and support maternal mental health. It suggests that the maintenance of non-resident father-child relationships is potentially beneficial for child well-being and argues that promotion and support of contact and involvement in children's early years likely requires a targeted approach. It further argues that the role of the non-resident father should be construed broadly to include consideration of support for the wider household in which the child lives.

Lay summary

In Scotland there are high levels of biological fathers who do not live with their children. Recent times have in particular, seen increasing numbers of very young children who do not live with their fathers. Non-resident father households are often seen as a cause for concern as child well-being is generally poorer than that in two biological parent families. These households are also typically afflicted by a range of difficult circumstances including lower household income, greater maternal mental health difficulties and poorer parenting behaviours. The continued involvement of fathers with their non-resident children is widely thought to be beneficial to child well-being and the maintenance of father-child relationships is therefore seen as an important way of improving child outcomes in non-resident father households.

This research was designed to examine whether the poorer child well-being in non-resident father households is directly related to the absence of the child's biological father or whether it is related to the poorer circumstances characterising these households. It also looked to find out whether non-resident father involvement was directly related to better child well-being or whether it benefited the wider household circumstances thereby indirectly improving child well-being.

The research used a survey conducted with mothers with young children that asked a range of questions about child well-being, non-resident father involvement and the wider circumstances of the household.

The key results were that the absence of the child's biological father from the household is not directly related to poorer child well-being. Instead, the absence of the child's father is related to lower income and poorer maternal mental health in lone mother households, which is in turn related to poorer child well-being. These poorer household circumstances generally appear to improve when a mother has a new partner, and in such households child well-being is not poorer than that in two biological parent families. The research also found that non-resident father involvement did not directly improve child well-being but rather that it may improve mothers' mental health which may in turn improve child well-being.

The research helps develop our understanding of why child outcomes are typically poorer in non-resident father households and offers insights as to how we might best try to support child well-being in such households. In the future, it would be helpful to explore these issues further by collecting information from fathers and children in addition to mothers, and by exploring these issues over time.

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List of abbreviations

BAS II - British Ability Scales Second Edition

CAPI - Computer Assisted Personal Interviewing

CFA - Confirmatory Factor Analysis

CFI - Comparative Fit Index

CHAOS - Confusion, Hubbub, and Order scale

ECHR – European Convention on Human Rights

EFA - Exploratory Factor Analysis

ESRC - Economic and Social Research Council

FFS – Fragile Families Study

GUS - Growing up in Scotland

MCS - Millennium Cohort Study

OLS - Ordinary Least Squares

ONS - Office for National Statistics

PSAPQ - Parent Supervision Attributes Profile Questionnaire

RMSEA - Root Mean Square Error of Approximation

ScotCen - Scottish Centre for Social Research

SEM – Structural equation modelling

SF12(MCS) - mental health component score of the Medical Outcomes Study 12-Item Short Form

TLI - Tucker-Lewis Index

UK - United Kingdom

UNCRC – United Nations Convention on the Rights of the Child

WRMR - Weighted Root Mean Square Residual

Chapter 1: Introduction

"When fathers aren't there for their kids, those children are more likely to live in poverty, fail at school, end up in prison and be unemployed later in life"

(Prime Minister David Cameron, 2011: 15)

Recent decades have witnessed significant changes in family structure and formation in Scotland. Arguably one of the most notable trends has been increasing levels of non-resident fatherhood, that is to say increasing numbers of biological fathers who do not live with their children. Levels of non-resident parenthood in Scotland are substantial. The 2011 Scottish Census indicated 28 per cent of all families with dependent children to be lone parent households; a notable increase from twenty years previous when the proportion of such households was only 19 per cent (ONS, 2014). Whilst non-resident parenthood is not synonymous with non-resident fatherhood, non-resident parents are overwhelmingly fathers. Indeed, the 2011 Census indicated 92 per cent of all lone parent households to be headed by the mother (ONS, 2014).

Non-resident fatherhood has long been an issue of concern to policy makers, practitioners and society at large. It appears to be a widely held view among policy makers, the general public and indeed some social scientists that the optimum family structure conducive to positive child outcomes and well-being is that of two biological married parents (Amato, 2005: 78). Increasing levels of non-resident fatherhood have therefore led to concerns regarding the well-being of children growing up without their biological father in the household. Indeed, so called 'absent fathers' have long been linked to a range of societal problems as captured by Prime Minister David Cameron's comment above. Such perceptions can lead to conclusions that children in non-resident father households are inherently disadvantaged in terms of their well-being and that the maintenance of relationships between non-resident fathers and their children, and the promotion of non-resident father involvement is imperative for child well-being.

This belief appears to find support in both law and policy in Scotland. In the first instance, legislation clearly stipulates that non-resident fathers must support their children financially. In the second instance, whilst legislation provides no legal presumption of contact, in practice Scots law appears to operate on the general principle that contact with non-resident fathers is

beneficial to child well-being and ought to be promoted in all but very limited circumstances such as where there is history of domestic abuse. It has been suggested by Wasoff (2007) that this principle may operate on the basis of misplaced assumptions as to the inherent disadvantages of non-resident fatherhood and the benefits of non-resident father involvement. Assumptions as to the benefits of non-resident father involvement are also found in Scottish policy in the form of the Parenting Agreement for Scotland (Scottish Executive, 2006). On a personal level, such assumptions were brought to my attention during my previous legal studies and my time volunteering at a local law centre. So, is such an approach and the perceptions underlying it grounded in empirical evidence, or is it indeed based on misplaced assumptions?

In the first instance, that the well-being of children in non-resident father households is poorer than their contemporaries in two natural parent households is indeed supported by existing empirical evidence (Amato and Keith, 1991; Amato, 2001; Pryor and Rodgers, 2001). However, studies have typically examined this issue through the lens of father presence / absence. Such simple dichotomies likely serve to mask the complex dynamics underlying associations between non-resident fatherhood and child well-being. As such, *why* living in a non-resident father household might be associated with poorer child well-being remains an open question. Is the poorer well-being typically characterising such households a direct consequence of paternal absence, or might underlying mediating mechanisms serve to transmit much of the negative association indirectly? Two key potential pathways through which negative associations between non-resident fatherhood and child well-being may operate have been identified in the literature namely, household economic circumstances and parental resources. There is considerable evidence suggesting non-resident father households are typically characterised by poor economic circumstances and parental resources (see for example, Marryat et al. 2009; Brown, 2000, 2002, 2004), which are in turn associated with poorer child well-being (see for example, Bradshaw, 2002). As such it is difficult to say whether the apparent negative associations between non-resident fatherhood and child well-being are primarily a function of paternal absence or the poorer circumstances typically characterising non-resident father households, or indeed a combination of both. Whilst the existing literature acknowledges this uncertainty, relatively little quantitative research has sought to unpick this complex network of associations through disaggregating direct and indirect associations within one comprehensive statistical model. Such an approach is

important if we are to advance our knowledge and understanding of the pathways through which non-resident fatherhood may operate to the potential detriment of child well-being. This is an important aim in terms of informing the approach to non-resident fatherhood taken by law, policy and practice. It is only by advancing knowledge and understanding of these pathways that efforts can be best directed to improving the well-being of children in non-resident father households. For example, if non-resident fatherhood is indeed inherently detrimental for child well-being than a general principle of promoting contact in most circumstances may indeed be appropriate. If however, much of the association comes about indirectly via the poorer circumstances typically characterising non-resident father households then perhaps efforts would be better directed towards improving such circumstances. Following on from this, it is not only necessary to try to better understand the pathways through which living in a non-resident father household may be associated with child well-being but also the relationships between child well-being and non-resident father involvement.

In the second instance, that the maintenance of contact and non-resident father involvement is inherently beneficial to child well-being by no means finds conclusive support from existing studies (Amato and Gilbreth, 1999; Adamsons and Johnson, 2013). Overall, evidence is mixed with, for example, stronger evidence indicating the quality of the father-child relationship to be important for child well-being but weaker evidence suggesting frequency of contact to be of importance. This lack of evidence appears at odds with the growing body of evidence indicating that children's well-being is enhanced by positive paternal involvement in two parent households (Flouri, 2005; Lamb, 2010). The existing literature however exhibits a number of key limitations. Firstly, few studies have considered all four aspects of involvement within one comprehensive model. Given that recent research suggests the strongest relationships between non-resident father involvement and child well-being are found when studies combine multiple types of involvement into a single variable, this is an important limitation (Adamsons and Johnson, 2013). Moreover, whilst studies have attempted to understand which particular aspects of involvement may be associated with child well-being, relatively little attention has been devoted to exploring the pathways through which non-resident father involvement may be associated with child well-being. In other words, do associations between involvement and well-being operate directly or indirectly via mediating mechanisms such as economic and parental resources? Developing

our understanding of these pathways is not only of importance to development of the field of non-resident fatherhood studies, in particular understandings of the role of the non-resident father, but also of practical importance in informing the approach taken by both policy and practice to supporting the well-being of children in non-resident father households.

In addition to these specific limitations of existing research, there exists a further key limitation across the field of non-resident fatherhood studies in terms of the conceptualisation and measurement 'child well-being'. As will be discussed in the literature review, existing studies have typically adopted a narrow, restrictive approach to conceptualising and measuring child well-being with studies considering one or two aspects of child well-being. Few studies adopt a holistic approach to the conceptualisation and measurement of child well-being through development of multi-dimensional constructs of well-being. Whilst there is no universally agreed upon understanding and definition of the term 'child well-being' the wider child well-being literature indicates there to be five key domains of consistently employed in studies of well-being namely, physical, psychological, cognitive, social and economic (Pollard and Lee, 2003). Development of our understanding of the associations between non-resident fatherhood and child well-being can undoubtedly be aided by adoption of a broader more holistic approach to the conceptualisation and measurement of well-being with a basis in the wider child well-being literature.

Beyond these limitations, there exists a broader concern in the form of a notable gap in the literature. Existing studies have focussed primarily on non-resident fatherhood occurring in adolescence following relationship breakdown with little attention having been paid to non-resident fatherhood occurring in children's early years either following relationship breakdown or commencing from birth. Whilst initial increases in non-resident fatherhood were largely attributable to rising divorce rates, increasing numbers of non-marital births, 51 per cent in Scotland in 2014 (GRO, 2015) have changed the face of non-resident fatherhood. Whilst many such births are jointly registered to cohabiting couples, 68 per cent in 2014, a significant minority are not, resulting in increasing numbers of non-resident fathers from birth. Furthermore, some evidence suggests cohabiting relationships are at greater risk of breakdown in children's early years than marriages (Greaves and Goodman, 2010, Osborne et al. 2007) culminating in increasing levels of early years non-resident fatherhood. At the same time, perceptions and understandings of fatherhood have changed quite dramatically in recent decades (Featherstone, 2009) and consequent changing paternal roles coupled with growing

recognition of the importance of the early years to future outcomes (Woodhead, 2006) renders non-resident fatherhood in the early years an interesting and important area for study in its own right. Firstly, as noted, the early years are a crucial time of development for children and as such consideration of the associations between non-resident fatherhood and child well-being is an interesting and important issue. Secondly, it is possible that the context of non-resident fatherhood in the early years is distinct to that experienced at later stages. For example, children may have lived with their fathers only very briefly if at all. Indeed some children may not have experienced a transition to non-resident fatherhood unlike those experiencing non-resident fatherhood at later stages. Thirdly, the poorer household circumstances which have been found to typically afflict non-resident father households may be felt even more acutely in the context of the early years. For example, mothers of very young children may be particularly constrained in their ability to find suitable work by the child care responsibilities of the early years which could have adverse consequences for household economic circumstances. Similarly, maternal mental health is potentially more vulnerable in the context of early years non-resident fatherhood if mothers shoulder the sole burden of caring for very young children. Ultimately, it is possible that the dynamics and impact of non-resident fatherhood in the early years may be distinct to that experienced at later stages and it is therefore inappropriate to neglect this stage of childhood in studies of non-resident fatherhood or to subsume its study within research exploring the phenomena in middle childhood or adolescence.

Research aims and questions

The overarching aim of this research is to further understanding and explanation of the associations between non-resident fatherhood and child well-being in the particular context of children's early years. The study is driven by five key research questions:

1. *Is early child well-being poorer in non-resident father households compared to two natural parent households?*

2. *To what extent is living in a non-resident father household associated with child well-being directly through paternal absence, and / or, indirectly via economic resources and parental resources?*

3. *Is non-resident father involvement associated with enhanced child well-being in the early years?*

4. *To what extent is non-resident father involvement associated with enhanced child well-being directly, and / or, indirectly via household economic circumstances and parental resources?*

5. *What circumstances and characteristics are associated with the maintenance of contact and levels of non-resident father involvement in the early years?*

As will be discussed when considering the existing literature, whilst these questions have already been explored to varying degrees by existing studies, the current study distinguishes itself and contributes to the field of non-resident fatherhood studies in several ways. Firstly, despite its increasing prevalence, there are still relatively few studies exploring non-resident fatherhood in the early years, a gap which is particularly acute in the specifically Scottish context. Secondly, informed by the wider child well-being literature, the current study adopts a more holistic approach to the conceptualisation of child well-being than is typically the case in studies of non-resident fatherhood through development of a theoretically informed, multi-dimensional latent construct of well-being. Similarly, the research seeks to address limitations in the conceptualisation and measurement of non-resident father involvement by developing a multi-dimensional construct of involvement. Finally, as will be detailed in the methods chapter, the statistical modelling employed by the study allows the research to explore in considerable depth the direct and indirect associations between non-resident fatherhood and child well-being allowing detailed consideration of the complex network of associations potentially underlying such associations. Taken collectively, these objectives contribute to development of the field of non-resident fatherhood studies in theoretical, methodological and practical terms.

Thesis Outline

Informed by a review of the existing relevant literature on child well-being in non-resident father households and the relationship between non-resident father involvement and child well-being, chapter two presents the conceptual framework adopted by the current study and considers in detail the research questions, including a statement of the key hypotheses to be tested in the analysis chapters. Chapter three provides an overview of the legal and policy

landscape relating to non-resident fatherhood. Chapter four provides a detailed account of the data and methods employed in the study including consideration of the strengths and limitations of secondary analysis, the dataset used in analyses, namely the Growing Up in Scotland study, the operationalisation and measurement of key concepts employed in analyses and the methods of statistical analysis used in the research.

Chapter five is the first of three substantive chapters and explores the associations between living in a non-resident father household and child well-being. It compares child well-being across non-resident father and two natural parent households and examines potential pathways through which living in a non-resident father household may be associated with child well-being. Chapter six explores associations between non-resident father involvement and child well-being and potential pathways through which such associations may operate. The last of the substantive chapters, chapter seven, explores the circumstances and characteristics which may be associated with the maintenance of contact and levels of involvement between non-resident fathers and their children. Finally, chapter eight concludes the thesis and presents a summary of the key findings of the research, and discussion of the implications for theory, policy and practice. The limitations of the study are also considered and areas for future research are identified.

Chapter 2: The conceptual framework

2.1 Introduction

The key aim of this thesis is to explore the associations between non-resident fatherhood and child well-being. This chapter presents the conceptual framework employed by the current study to analyse this issue. It is important to make clear that the study does not draw upon or seek to test a single overarching theoretical perspective, instead the study draws upon a range of ideas, concepts and theories to develop a framework through which to explore associations between non-resident fatherhood and child well-being.

In developing the conceptual framework, consideration is first given to the existing literature which informed both the research process and interpretation of the research findings. Consideration is given to the empirical research exploring associations between living in a non-resident father household and child well-being followed by consideration of the evidence regarding the associations between non-resident father involvement and child well-being. The empirical evidence highlighting potential pathways through which associations between non-resident fatherhood and child well-being may operate is then considered. The rationale underlying the current study is discussed in light of limitations and gaps of the existing literature. Informed by the existing literature, the conceptual framework used in the current study is then discussed. The chapter concludes with consideration of each of the five key research questions detailed in the introductory chapter.

2.2 Is child well-being poorer in non-resident father households?

The rising divorce levels of the 1960s and 70s saw a surge of interest in the effects of family structure and non-resident fatherhood on the well-being of children following divorce. A number of these early studies indicated that children of divorced parents encounter a wide range of problems and difficulties in terms of educational achievement and emotional and behavioural well-being (Glueck and Glueck, 1962; McDermott, 1970). Furthermore, it was indicated that negative outcomes were not limited to the immediate aftermath of divorce but potentially persisted for some time after. For example, one longitudinal study following 60 divorced families found that whilst 1/3 of children had adjusted well 5 years after the divorce,

more than 1/3 of children continued to experience a range of negative outcomes including clinical depression, poor academic achievement and poor peer relationships (Wallerstein and Kelly, 1980). Subsequent early studies however challenged the view that divorce is inherently detrimental to child well-being. Hetherington et al. (1982) for example, followed 144 pre-school children, 72 from divorced lone mother families and 72 from two natural parent married households. Whilst findings from the first year of the study found that children with divorced parents did experience more emotional and behavioural difficulties, levels of increased problems were generally found not to persist two years after divorce. Boys did however continue to experience greater levels of problems in some domains than their contemporaries in two natural parent married families. Interestingly, subsequent waves of data indicated that maternal re-partnering led to increased problems, for girls in particular.

A number of subsequent studies have suggested that the negative effects of divorce are not alleviated by the passage of time but continue to persist into adulthood. Adults who experienced the divorce of their parents during their childhood have been found to be at risk of poorer outcomes across a range of areas; they are more likely to have lower socio-economic status, to have a non-marital birth, poorer relationship quality and emotional bonds with their parents, poorer psychological well-being, poorer marriage quality and an increased chance of divorce (Amato and Booth, 1997; Amato and Sobolewski, 2001; Booth and Amato, 2001; Cherlin et al. 1998; McLanahan and Sandefur, 1994).

Studies exploring associations between non-resident fatherhood and child well-being have never been in short supply and the issue has been the subject of much research from the 1970s through to the present day (for example, McDermott, 1970; Goisis et al. 2016). Studies have typically focused on two issues, firstly consideration of whether the well-being of children in non-resident father households is poorer than their contemporaries in two natural parent households and secondly, consideration of whether non-resident father involvement can serve to enhance child well-being. Despite the plethora of studies however the field of non-resident fatherhood is characterised by inconclusive, equivocal and at times contradictory findings. Indeed, findings of individual studies display huge divergence making it difficult to draw any firm conclusions regarding the association between non-resident fatherhood and child well-being. Some are indicative of serious detrimental effects of divorce and non-resident fatherhood whilst others suggest only modest or indeed no effects. It is important to be aware that there are a number of issues potentially contributing to the current

equivocal state of the field. Firstly, the studies reviewed span a considerable time period with some having been conducted in the early 1980s and some in only the last couple of years. It ought therefore to be expected that results may vary quite significantly. As attitudes towards the paternal role have shifted so too have the dynamics of fatherhood which may go some way to explaining the divergence of findings across studies. Secondly, studies originate from different countries and the context of 'place' therefore is likely to bear relevance for the findings of particular studies. It is important to note that much of the existing literature is based on studies from the US, an issue which must be borne in mind when considering the applicability of findings to the UK and more specifically, the Scottish context. Thirdly, issues of sample size and sample selection likely account in part for inconsistent conclusions. Some studies used large nationally representative samples whilst others used only small unrepresentative samples. In addition, some studies sampled only resident mothers whilst others focussed solely on non-resident fathers. Sample selection has also tended to focus on specific sub-groups, for example, white families, former spouses / cohabitees and adolescents with some sub-groups such as very young children, particularly those experiencing non-resident fatherhood from birth, having received scarce attention in the literature. A further issue which has likely contributed to the ambivalent state of the field is the lack of consistency in measurements across studies. Perhaps the greatest and most notable discrepancies occur in the conceptualisation and measurement of 'child well-being'. The findings of particular studies are therefore very likely impacted by the operationalisation and measurement of this concept. The issues highlighted here are by no means an exhaustive explanation of why the field of non-resident fatherhood studies is characterised by uncertainty and contradiction. They do however provide an insight into why definitive trends and explanations in the field are in short supply.

Given the somewhat uncertain state of the research literature, meta-analyses are an invaluable aid to making sense of the myriad of findings. Meta-analyses pool the results for a large number of studies and through statistical techniques overcome inconsistencies in sample size and type, ages of the children studied, outcomes examined and methods of analysis allowing

researchers to calculate effect sizes[1] and provide a summary of general trends. There have been a number of meta-analyses conducted in the field of non-resident fatherhood studies. Firstly, Amato and Keith's 1991 meta-analysis considered the effects of divorce on child well-being pooling the results of ninety-two studies conducted in the US over the 1950-80s. They concluded that children of divorced parents experienced significantly poorer outcomes than children from two natural married parent households across a range of areas including academic achievement, conduct, psychological adjustment, self-concept, social adjustment and both mother / father – child relationships. Effect sizes however were modest, ranging from -0.08 for psychological adjustment to -0.26 for father-child relationships. Amato and Keith suggest that these modest effect sizes reflect the hugely varying circumstances of children. Living in a two natural married parent household is by no means a guarantee against adverse and stressful circumstances. Children in such households can of course experience poverty, poor quality and conflicted inter-parental relationships and inadequate parenting; experience which can negatively impact upon child well-being. Similarly, children with divorced parents are not inevitably exposed to adverse and stressful situations. Parental separation need not be conflicted and divorced parents can establish a co-operative parental relationship. In such cases any potential detrimental impact of divorce for child well-being may be lessened. Interestingly, Amato and Keith also found a shift in the magnitude of effect sizes over time. Effect sizes for academic achievement, conduct, self-concept and mother-child relations were found to be statistically significantly lower in studies conducted in the 70s and 80s than their predecessors in the 50s and 60s leading the authors to suggest the *"implications of parental divorce for children's well-being have become less pronounced since the 1950s and 1960s"* (1991: 34). The authors note there to be a number of explanations potentially underlying this finding. As divorce became more common it perhaps became more socially acceptable thereby alleviating negative outcomes for children. Alternatively, as societal concerns about the negative impact of divorce for child well-being increased perhaps parents were more aware of ensuring their children's adjustment after divorce. However, it is quite possible that the apparent association between time and effect

[1] 'Effect size is a simple way of quantifying the difference between two groups that has many advantages over the use of tests of statistical significance alone. Effect size emphasises the size of the difference rather than confounding this with sample size.' (Coe, 2002). According to Cohen (1992), an effect size of 0.10 = small effect; 0.30 = medium effect; 0.50 = large effect.

size is spurious. The study found that weaker effect sizes were found in more methodologically sophisticated studies, for example those which employed random sampling rather than convenience sampling, those with larger samples, those with multiple-item outcomes and those employing multivariate rather than bivariate methods of analysis. As later studies unsurprisingly tended to employ more sophisticated methods it is possible that the apparent associated between time and effect size could in fact be explained by methodological advances.

This was one issue arising from the 1991 meta-analysis explored by Amato in his 2001 meta-analysis. The 2001 study sought to update the earlier study, pooling the results of 67 studies conducted in the US throughout the 1990s to again explore the effects of divorce on child well-being. Children of divorce were once again found to have statistically significantly poorer well-being than their contemporaries from two natural married parent households across a range of outcomes including academic achievement, conduct, psychological adjustment, self-concept and social relations. Children's relationships with their mothers and fathers were not considered in the study. Effect sizes remained modest ranging from -0.12 for self-concept to -0.22 for conduct. In terms of changes in effect sizes over time, if it is indeed the case that methodologically more sophisticated studies yield smaller effect sizes then one could reasonably have expected to see a continuation of the decreasing effect sizes found by Amato and Keith (1991) throughout the 1990s. This however was not the case, with Amato finding effect sizes of studies from the 1990s comparable to those found in studies from the 1980s. Moreover, after controlling for methodological characteristics, Amato in fact found an increase in effect sizes between decades suggesting the well-being gap between children of divorced and continuously married households had actually widened. Analyses revealed a curvilinear trend across a range of outcomes including academic achievement, conduct, psychological adjustment and self-concept with effect sizes being weakest in the early 1980s and stronger in the 1990s.

Amato (2001) suggests two potential explanations for the apparently increasing gap in child well-being across divorced and continuously married households. In the first instance, he cites a shift in the nature of marital dissolution. Divorce has undoubtedly become more socially acceptable and easier to obtain in terms of costs and the legal process. This, according to Amato has resulted in a lower 'threshold' for divorce. That is to say that couples are divorcing at a lower level of dissatisfaction than was previously the case when divorce

was frowned upon and the process was costly and difficult to embark upon. Amato suggests that low threshold divorces may be particularly damaging to children. Generally occurring in the context of lower levels of conflict, they are more unexpected and difficult to comprehend for children and may come without the benefits to child well-being that potentially arise when parents in a high conflict marriage divorce.

In the second instance, Amato cites an increasing gap in the economic well-being of divorced and continuously married households as a potential cause of the apparently widening gap in child well-being. The 1990s saw economic expansion characterised by higher wages, lower unemployment and increasing levels of women in the labour market. The benefits of this expansion however did not permeate all households. Whilst the economic well-being of two-parent married families where both parents were in employment flourished, the economic well-being of single parent households deteriorated. As economic resources are well documented as a key predictor of child well-being, it is possible that the widening gap in economic well-being between single parent and continuously married families has caused the well-being of children in single parent households to fall behind that of their contemporaries in continuously married households. As Amato (2001) however notes, there is no strong irrevocable evidence supporting either of these two hypotheses.

It is important to note that the studies considered thus far have been concerned with child well-being in the aftermath of divorce. Indeed the majority of research in the field of non-resident fatherhood, and early studies in particular, focused largely on the well-being of children who had experienced parental divorce. Non-resident fatherhood need not of course arise in the aftermath of divorce. With increasing numbers of children born to unmarried but cohabiting parents many children experience non-resident fatherhood as a result of separation rather than divorce. Addressing this gap in the literature, Pryor and Rodgers (2001) conducted a comprehensive review of approximately 200 studies examining the impact of parental separation, not limited to divorce, on child well-being. They concluded children who had experienced parental separation to be at increased risk of a range of negative outcomes including behavioural problems, poorer academic achievement, increased likelihood of needing medical treatment, increased likelihood of becoming sexually active, pregnant or a parent at an early age, depressive symptoms and higher levels of smoking, drinking and drug use. They did however conclude that long-term negative outcomes applied to only a minority of children. The focus of studies of non-resident fatherhood has certainly now widened

beyond the scope of divorce to routinely consider child well-being in the aftermath of parental separation more broadly. For example, recent analysis of the MCS considered child outcomes following separation, finding children of separated parents tend to have worse outcomes than children of continuously married or cohabiting parents (Goisis et al. 2016).

Of course non-resident fatherhood need not arise in the context of parental separation at all. A distinct feature of early years non-resident fatherhood may be that children are born to parents who are neither married nor cohabiting and who may have no form of established relationship beyond the child's conception. In 2014, some 16 per cent of births in Scotland were registered to non-cohabiting couples or solely to the mother (GRO, 2015). It is possible that such children had a non-resident father at birth. As such early years non-resident fatherhood merits specific consideration and constitutes a notable gap in the existing literature. Recent studies using data from the Millennium Cohort Study (MCS) and the US Fragile Families Study (FFS) have begun to address this gap. Research using the FFS has indicated better outcomes for children in two natural parent families compared to their contemporaries in non-resident father households across a range of outcomes including health and behaviour (Harknett, 2005; Osborne et al. 2004; Osborne, 2007) whilst studies analysing the MCS have shown some, albeit weak, evidence of children in non-resident fatherhood households exhibiting poorer cognitive and behavioural outcomes (Kiernan and Mensah, 2009). Despite these welcome additions to the field, early years non-resident fatherhood still remains a relatively unexplored issue and in light of its growing prevalence appears an increasingly important gap to address. In addition, it is important to note that the FFS uses a sample of families identified as 'fragile' consisting of unmarried parents and their children, and is not a study of all families including non-fragile families who experience non-resident fatherhood. Consequently, the FFS sample cannot be directly compared to non-fragile samples of families such as those in GUS or the MCS.

2.3 How might non-resident fatherhood influence child well-being?

Despite the mixed-bag of findings characterising the field of non-resident fatherhood studies, it would seem safe to say that there is indeed some association between family structure and child well-being. Living in a non-resident father household appears to be associated with poorer child well-being across a range of domains. The significance of this association however should not be overstated as on balance it would appear that effect sizes are only

modest. Non-resident fatherhood can influence child outcomes and well-being but it is not necessarily the most important nor determinative influence. Ultimately, child well-being is complex and is not determined by a single factor such as family structure. Amato, for example, has noted that such an understanding is *"consistent with a broad, sociological understanding of human behavior. Most behaviors are determined by numerous social, cultural, individual, and biological factors. No single variable, such as family structure, has a monolithic effect on children's development and behavior."* (2005: 87). It is this premise which forms the basis of the theoretical framework employed in exploring the relationship between non-resident fatherhood and child well-being in the current study. As noted by Brown (2004:252-253) in her study of the relationship between parental cohabitation and child well-being, family structure, characterised in the case of the current research, by the absence of the child's natural father from the household, can serve to mask the underlying family relationships and dynamics at play. This can make it very difficult to explain the relationship between non-resident fatherhood and child well-being. In order to unpack this relationship, it is necessary to identify the underlying mechanisms which may help to explain it. The non-resident fatherhood and family structure literature in addition to the wider child well-being literature have highlighted a number of key issues which appear central to explaining the relationship between non-resident fatherhood and child well-being including household economic circumstances and parental resources. Both of these issues are of great importance to child well-being whilst also being associated with non-resident fatherhood. Consequently it is possible that if non-resident fatherhood does indeed impact upon child well-being, much or at least part of this impact may come about indirectly through the mediating influence of household economic circumstances and parental resources as opposed to being directly attributable to paternal absence. Moreover, these mediators are not mutually exclusive but are themselves interlinked. Consideration will now be given to how the identified underlying theoretical mechanisms might operate to help explain the relationship between non-resident fatherhood and chid well-being.

2.3.1 Household economic circumstances

Household economic resources and circumstances play a central role in child well-being. Indeed, economic hardship and poverty have been clearly highlighted as key drivers of poor child well-being (see for example, Bradshaw, 2002, Bradshaw et al. 2007). In the context of non-resident fatherhood it is likely, or at least possible that the apparently poorer well-being

of children in non-resident father households is partly a function of economic differences between the two groups. In other words, the impact of non-resident fatherhood on child well-being may be primarily felt indirectly through its impact on household economic circumstances as opposed to directly through paternal absence. Such an assertion is based on an assumption that household economic resources and circumstances will be poorer in non-resident father compared to two natural parent households. So, does living in a non-resident father household equate on average, to living in a household characterised by poor economic resources and circumstances? Compared to two parent households, both theory and empirical evidence would suggest this is indeed the case. Economic theory submits that not only will household structures alternative to that of two parents fare worse in terms of economic resources but also that children living in such households will necessarily fare worse in terms of their well-being due to this economic disadvantage. According to economic theory, the two-parent family is one of the most effective forms of a modern capitalist society (Becker, 1964, 1981; Becker and Tomes, 1986). This theory asserts that socio-economic success is dependent upon investment in both the marketplace and the home. Two-parent families effectively manage these investments with household services being provided by one parent, typically the mother, and economic resources by the other, typically the father. In having two parents to provide the necessary resources from both spheres, children from two-parent families, be they natural or step-families, will be more successful than those from single-parent families. With regard to child well-being, economic theory ultimately submits that, all else being equal, because a single parent cannot generate economic resources and provide household services on par with two parents, children from single-parent families simply cannot fare as well as their counterparts from two-parent families.

Empirical evidence too is indicative of the financial disadvantage experienced by non-resident father households relative to two parent households. Studies have clearly and consistently shown there to be a negative association between non-resident fatherhood and household economic resources and circumstances. Children living in lone mother families have an increased likelihood of experiencing financial hardship and poverty than children in two parent households. For example, recent analysis of GUS data revealed 68 per cent of lone mother households fell into the lowest income group compared with only 13 per cent of two natural parent households (Marryat et al. 2009). Similarly, recent analysis of the MCS and FFS revealed lone mothers in both the UK and US to be considerably more likely to fall into

the bottom income quintile compared than either married or cohabiting mothers. Interestingly, the proportion of lone mothers in the bottom income group in the UK was notably higher than that in the US, 81 per cent compared with 62 per cent (Kiernan et al. 2010).

It might quite reasonably be thought that such financial disadvantage is simply an inevitable consequence of the household structure; in a lone mother household there is only one potential breadwinner. In addition this difficulty may be further compounded as the ability of lone mothers to secure suitable employment may be constrained by childcare responsibilities and their position as sole carers, particularly where very young children are concerned. It might therefore be expected, and indeed economic theory would predict, that on a lone mother re-partnering the financial disadvantages of non-resident fatherhood would be relieved. Theoretically at least, in a re-partnered household there are potentially two breadwinners and two parents to share in childcare responsibilities. However in conflict with the assertions of economic theory, the empirical evidence suggests otherwise. Studies have indicated that the financial disadvantages of lone parenthood are not wholly alleviated by the formation of a step-family. For example, whilst analysis of GUS data revealed the proportion of re-partnered mother households in the bottom income group to be considerably lower than the proportion of lone mother households, it was nonetheless considerably higher than the proportion of two natural parent households, 36 per cent compared with 13 per cent (Marryat et al. 2009). Whilst children in step-families may be less economically disadvantaged than children in lone parent households, they remain at a disadvantage compared to children in two natural parent households. This would suggest that it is not simply the presence of two adults in the household which is important but the presence of two natural parents.

The economic hardship which undoubtedly characterises non-resident fatherhood has a number of potential consequences for child well-being. Firstly, the financial disadvantage of non-resident fatherhood means that lone parents and step-families have fewer resources to purchase things which can assist in children's educational achievements such as books, computers or additional lessons and extra-curricular activities. Financial difficulties can also mean that single parent / step family households live in more disadvantaged areas (Amato, 2005). As Amato notes, living in a disadvantaged area can bring with it a host of other concerns such as higher levels of crime, poorer quality schools and fewer, lower quality community services; factors which can in and of themselves also impact negatively upon

child well-being. Finally, as will be subsequently discussed, a further important potential consequence of the financial hardship that can afflict non-resident father households is its potentially damaging impact on maternal mental health and parenting behaviours, an impact which can have significant consequences for child well-being. Ultimately, given the negative association of household economic resources with both child well-being and non-resident fatherhood, it seems likely that disparities in such resources across non-resident father and two natural parent households are potentially an important mediator in the relationship between paternal absence and child well-being.

2.3.2 Parental resources

Economic resources are of course not the only resource provided by parents of importance to child well-being; maternal mental health and parenting behaviours are two important parental resources which are also of great significance.

Maternal mental health

Poor maternal mental health has clearly been linked to poorer child well-being. For example, research has shown depressed mothers to be potentially less responsive to attempts by their infants to engage with them which can negatively impact upon the strength of the attachment between mother and child (Murray et al. 1991). Poor attachment has in turn been linked to poorer cognitive development at 18 months (Murray et al. 1996). Recent analysis of GUS data found children whose mothers had experienced either brief or repeated mental health problems had poorer social, emotional and behavioural development at 46 months than their contemporaries whose mothers had remained emotionally well throughout the study period. This relationship remained statistically significant after controlling for a wide range of factors including maternal characteristics, family and child characteristics, household characteristics and psycho-social characteristics (Marryat & Martin, 2010). Other studies have also shown associations between higher levels of maternal depression and children's social, emotional and behavioural development (Pettersen and Albers, 2001; Wachs et al. 2009). In addition, the literature review again indicated mothers in non-resident father households to have on average, poorer mental health than their contemporaries in two natural parent households (Brown, 2000, 2002, 2004).

Given the potential importance of maternal mental health for child well-being, the relationship between child well-being and non-resident fatherhood may be partly explained

by differences in maternal well-being across non-resident father and two natural parent households. Once again, the effects of non-resident fatherhood on child well-being may be less a direct function of non-resident fatherhood but rather indirectly attributable to paternal absence through its association with maternal mental health. How therefore might we expect maternal mental health to differ across non-resident father and two natural parent households? There are a number of grounds to suggest that mothers in non-resident father households will on average, experience poorer mental health than mothers in two natural parent households. At the root of this is the increased exposure to stressful situations potentially encountered by mothers in non-resident father households compared to mothers in two natural parent households. Firstly, as noted, financial hardship can be a potent source of stress for both lone and indeed re-partnered mothers. As indicated, non-resident father households are, on average, characterised by poor economic circumstances relative to two natural parent households and this is likely a potential cause of compromised maternal mental health in such households. Secondly, non-resident fatherhood usually arises following separation or divorce and the transition thereto is potentially an emotional and distressing experience for all parties involved, not least mothers. The transition to non-resident fatherhood may therefore negatively impact upon maternal mental health with some evidence suggesting that relationship breakdown has a greater negative impact on maternal mental health than men's mental health (Block et al. 1998). Mothers must deal with their own anxieties and emotional upset following relationship breakdown in addition to those of their children. Even if parents attempt to shield children directly from the trauma of relationship breakdown its impact on maternal mental health may have an indirect negative effect on child well-being. Thirdly, negotiation of the post-separation inter-parental relationship may again be a potential source of stress to mothers and indeed children, particularly if it is characterised by high levels of conflict and tension. Once again mothers must deal with the emotional distress that this potentially entails for both themselves and their children. Finally, in lone mother households the burden of being the sole carer (in addition to potentially being the sole financial provider) is yet another potential source of stress. Furthermore, it is important to note that this burden of care will not necessarily be eased on a lone mother re-partnering. Whilst the presence of an additional adult in the household might be expected to lessen some of the stress associated with the burden of sole child care this is by no means guaranteed. A new partner will not necessarily assume the parental role and may instead experience a more peer-like relationship with children in the household. In addition, the

formation of a step-family may in itself be a potential source of stress to mothers and indeed all parties concerned, as members of the household negotiate new roles and relationships. Ultimately, the transition to non-resident fatherhood and the consequences which can often follow can potentially be great sources of stress and anxiety to mothers. Exposure to such stressful situations is potentially detrimental to maternal mental health.

That mothers in non-resident father homes will experience poorer mental health is an assertion that finds support in empirical studies. The research evidence has for some time now indicated rates of depression to be particularly high among mothers in low income families with young children and among lone mothers (Brown & Harris, 1978; Brown & Mooran, 1997). Moreover, Brown has found both lone and cohabiting mothers to have higher levels of depression than their married counterparts (2000, 2002, 2004). Ultimately, it seems likely that differences in maternal mental health across non-resident father and two natural parent households will aid explanation and understanding of the relationship between non-resident fatherhood and child well-being.

Parenting behaviours

Parenting behaviours have been found to be one of the best predictors of child outcomes across a range of domains. Evidence suggests poorer parenting quality is one of the best predictors of child well-being across a variety of family forms including two natural parent households, lone parent households and stepfamily households (Amato, 2005; Smith, 2005). Consequently, it may be that the relationship between non-resident fatherhood and child well-being can be partly accounted for by differences in parenting behaviours across non-resident father and two natural parent households. A range of theories grounded in the sociological perspective submit that non-resident fatherhood negatively impacts upon parenting styles and quality.

Socialisation theory stresses the crucial role of parenting behaviours in influencing and guiding children's lives (Baumrind, 1978, 1980; Parcel & Munaghan, 1994). According to socialisation theory, non-resident fatherhood has significant consequences for parenting. It submits that paternal absence means the levels of guidance and control available for a child are limited and necessarily less than those in two natural parent households (Astone & McLanahan, 1991; Thomson et al. 1994). A second potentially detrimental impact of non-resident fatherhood on parenting behaviours suggested by socialisation theory arises by merit

of the transition to non-resident fatherhood. Transitions to alternative family forms are typically distressing and somewhat traumatic events, such as divorce or death. As discussed, this upheaval together with the additional responsibilities of being a single parent can have a negative impact on mothers' emotional well-being. Aside from the potential direct association between poor maternal mental health and poorer child well-being considered previously, poor maternal mental health may indirectly impact upon child well-being through its potentially adverse consequences for parenting behaviours. The potential impairments of parenting behaviours resulting from poor maternal mental health are purported to be wide-ranging. For example, it is submitted that poor maternal health can lead to inconsistent parenting (Hetherington et al. 1996). It is further submitted that mothers will unreasonably expect their children to exhibit a maturity beyond their years (Weinstein & Thornton, 1989), will exhibit greater authoritarianism and use of harsh discipline towards their children and will pay less attention to children's behaviour and activities (Thomson et al. 1992). Ultimately, it is asserted that the detrimental consequences of non-resident fatherhood for parenting behaviours will serve to hinder child development and well-being (Biblarz & Raftery, 1999).

Learning theory similarly submits that non-resident fatherhood adversely affects parenting behaviours. This theory asserts that children learn the norms and expectations of society and are prepared to take their place in that society within the family setting (Kohn, 1969, 1983). It is claimed that the absence of a child's father sets the stage for a number of potentially detrimental consequences for parenting behaviours and hence child well-being. Firstly, it is submitted that children in lone mother households will lack a male role model whose presence is necessary to demonstrate success in the market place (Powell & Parde, 1997, McLanahan and Sandefur, 1994). It is further submitted that children in non-resident father households will experience difficulties in developing an understanding of authority relations due to the absence of a natural father (Nock, 1988). The mother / child relationship is regarded as becoming more 'peer like' in the absence of a natural father whilst the stepfather / child relationship is likely to be one more of friendship than parenting (Biblarz and Raftery, 1999). Ultimately it is submitted that the negative impact of non-resident fatherhood as felt by the lack of both the male role model and a model of authority relations serves to impede children's educational and occupational achievements. Like socialisation theory, learning theory also submits that the impact of the stressful and often traumatic nature of transitions

leading to non-resident fatherhood and alternative family structures is not limited to children's short term outcomes but can potentially impact in the longer term (Amato and Booth, 1997; Glenn and Kramer, 1987).

Finally, control theory again submits that non-resident fatherhood will impact negatively upon parenting behaviour. This theory asserts that alternative family forms necessarily result in a weakening of parental control. In lone mother families, such a result is viewed as simply *"a structural consequence of the absence of the father from the residential home"* (Biblarz & Raftery, 1999: 325); the presence of only parental figure is asserted to automatically equate to lesser levels of parental control. Once again, this disadvantage is not necessarily alleviated on the formation of a step-family for stepparents are regarded as generally not having the same authoritative role as natural parents (Furstenberg and Cherlin, 1991). It is ultimately submitted that levels of parental control in non-resident father households will not compare favourably with those in two natural parent households with potentially damaging consequences for child well-being.

Support for each of these theories has been found in numerous studies. Research has found lone parents to be at greater risk of exhibiting behaviours which can impact negatively on child well-being. For instance, a number of studies have suggested lone parents are on average, more likely to impose fewer household rules, to spend less time with their children and supervise them less, to be harsher and more inconsistent in their use of discipline and to have a more conflicted relationship with their children (Astone & McLanahan, 1991; Dunifon & Kowaleski-Jones, 2002; Hetherington & Clingempell, 1992; Sandberg & Hofferth, 2001; Thomson et al. 1992). Many of these issues are perhaps directly linked to financial difficulties and a lack of support in carrying out the day to day childcare duties that comes from having a second adult in the household. What therefore happens when a lone mother re-partners? Having a second adult in the household provides an 'extra pair of hands' which could be thought to alleviate the stresses and strains which may negatively affect the quality of mothers' parenting in addition to providing another source of guidance and control for children. However, this is not necessarily the case. In accordance with learning theory and control theory, the relationship between and children and step-parents may be peer-like and one of friendship rather than that of parent and child (Biblarz & Raftery, 1999). As such the burden of parenting may continue to be borne primarily by mothers along with the associated potentially damaging impact for both maternal mental and parenting quality. In addition as

noted, the formation of a step-family will be unlikely to wholly alleviate the financial disadvantages experienced in lone mother households. Consequently, the associated stress and resultant detrimental impact this can again have on both maternal mental health and parenting behaviours is likely to be felt more acutely by mothers in re-partnered households than their counterparts in two natural parent households. Finally, the formation of a step-family can be a stressful experience for children and may be a potential precursor of poor child well-being in and of itself. In light of the somewhat limited benefits to both maternal mental health and parenting behaviours and the potentially stressful experience of step-family formation, it is perhaps unsurprising that studies have found child well-being in step-families to be similar to that in lone parent families (Amato, 1993; Brown, 2004; Hetherington & Jodl, 1994).

2.3.3 Stability of family form

When considering studies exploring child well-being the context of divorce, separation or within a stepfamily household, it is important to bear in mind that children have necessarily experienced some form of transition and potentially the often associated experiences of stress, anxiety and tension. Consequently it is quite conceivable that many of the adverse effects observed in these studies are at least partly attributable to this transition rather than the absence of the natural father per se. Stability of family form is therefore an important issue for studies seeking to explore the relationship between non-resident fatherhood and child well-being to take account of. Indeed recent evidence from both the MCS and FFS has indicated the importance of stability in family form for child well-being (Kiernan & Mensah, 2010; Kiernan et al, 2011; Waldfogel et al. 2010). In the context of non-resident fatherhood in the early years, a transition to non-resident fatherhood is perhaps less common with many children having never resided with their fathers (Marryat et al. 2009). The current study does not seek to explore stability of family form as a potentially mediating factor of the relationship between non-resident fatherhood and child well-being; largely due to the lack of a large enough sample size to support sub-group analysis at a sufficiently detailed level. However, acknowledging the undoubted importance of stability of family form for child well-being, the study controls for whether the household has experienced a transition to non-resident fatherhood. Furthermore, it is important to note that researchers have in fact suggested that the transition to non-resident father may again not be directly associated with poorer child well-being but indirectly through the negative outcomes associated with

transition in terms of economic resources, and parental resources in the form of maternal mental health and parenting behaviours (Mooney et al. 2009).

2.4 Is non-resident father involvement beneficial to child well-being?

Despite the mixed-bag of findings characterising the field of non-resident fatherhood studies, it would seem safe to say that there is indeed some association between non-resident fatherhood and child well-being. Living in a non-resident father household appears to be associated with poorer child well-being across a range of domains. The significance of this association however should not be overstated as on balance it would appear that effect sizes are only modest. Non-resident fatherhood is of course not a universal, uniform experience. One child's experience of non-resident fatherhood can be dramatically different from that of another. Some children may maintain a close relationship with their father and enjoy frequent contact whilst others may see their father very little and inconsistently, if at all. Some children may receive regular financial support from their fathers whilst others may receive such support irregularly or not at all. Some children may experience non-resident fatherhood in the context of a positive and co-operative inter-parental relationship whilst others may experience high levels of conflict between their parents. What particular aspects of non-resident father involvement may therefore be influential in child well-being? Studies examining the relationship between non-resident fatherhood and child well-being have centred around four key issues; payment of child support, frequency of contact, quality of the father-child relationship and the inter-parental relationship.

2.4.1 Payment of child support

The relationship between the payment of child support and children's well-being is one of the few areas of non-resident fatherhood where evidence is reasonably strong and unequivocal. Perhaps unsurprisingly, the payment of child support has consistently been found to be positively associated with children's well-being. As noted, evidence suggests single mothers are disproportionately likely to live in poverty (see for example, Kiernan et al. 2010; Marryat et al. 2009). As it is well established that poverty is a primary determinant of poor child well-being it therefore seems logical that child support payments will alleviate some of the potential negative impacts of non-resident fatherhood. Payment of child support will improve children's standard of living which will in turn impact positively on overall well-being. Numerous empirical studies have found support for this assertion. Arguably the strongest

evidence of the positive effects of payment of child support has been found in relation to educational achievement (Furstenberg et al. 1987; Graham et al. 1994; King, 1994a,b; McLanahan et al. 1994). McLanahan et al. (1994) found that the drop in household income in the aftermath of divorce or separation accounted for approximately half the risk of poor educational achievement. Similarly strong evidence exists indicating the positive association between the payment of child support and behavioural adjustment following relationship breakdown (Furstenberg et al 1987; McLanahan et al 1994).

As previously noted, meta-analyses are an invaluable aid to making sense of the multitude of findings across studies. The most notable meta-analysis examining the relationship between non-resident father involvement and child well-being is that conducted by Amato and Gilbreth (1999) which pooled the results of 63 studies published between 1970 and 1998. The study examined four aspects of non-resident father involvement including provision of child support, captured primarily by a continuous variable reflecting the amount of support provided or a dichotomous variable indicating whether or not child support was paid. Offering further evidence of the positive relationship between child support and child well-being, Amato and Gilbreth (1999) found a statistically significant association across studies between the payment of child support and greater academic achievement and fewer externalising problems, an association which was statistically significant across the time span of the studies. Effect sizes were however modest at .09 and -.08 respectively. Financial support was not however found to be statistically significantly associated with levels of internalising problems.

Whilst the link between child support and child well-being has appeared well established in the literature, results of a more recent meta-analysis conducted by Adamsons and Johnson (2013) are unsupportive of this association. Adamsons and Johnson sought to update and expand upon the work of Amato and Gilbreth (1999), pooling the results of 52 studies of non-resident father involvement and child well-being published between 1981 and 2006. In contrast to Amato and Gilbreth, the 2013 meta-analysis found no statistically significant associations between provision of financial support, assessed via items such as level of child support and buying clothing, food or toys, and overall child well-being. These results are particularly interesting as it might have been expected that use of a broader measure of financial provision, capturing not simply monetary but in-kind support too, might have exhibited a stronger relationship with child well-being. Adamsons and Johnson (2013: 596)

suggest their findings in this regard may be reflective of a recent policy shift from a focus on ensuring non-resident fathers provided financially for their children to increased emphasis on encouraging non-resident fathers to take an involved and nurturing role in the lives of their children. Unfortunately, unlike Amato and Gilbreth, Adamsons and Johnson did not examine the relationship between provision of child support and particular aspects of child well-being.

The potential importance of child support payments to child well-being is important in the context of non-resident fatherhood in the early years. Non-resident fathers who are young and / or unmarried have been found on average to have lower levels of education, earnings, employment and are more likely to live in poverty (Bradshaw et al. 1999; Jaffee et al. 2001; Poole et al. 2013; Nock, 1998;). These factors may culminate in such fathers experiencing difficulties in financially supporting their children. Non-resident fatherhood in the early years may be more likely to be experienced by these very fathers. In addition, in the UK, single mothers of very young children may be more constrained in their capacity to find employment due to the childcare demands of the early years. Consequently children experiencing non-resident fatherhood in their early years may be at risk of even greater financial disadvantage than those in middle childhood or adolescence.

2.4.2 Frequency of contact

Most early studies exploring the relationship between non-resident fatherhood and child well-being focussed on frequency of contact, typically using basic measures capturing the number of episodes of direct contact occurring within a particular time frame, for example, a week, a month or a year. Considering the results of individual studies, evidence regarding the relationship between the frequency of contact and child well-being is decidedly mixed. Indeed early evidence of any potential relationship could only be described as inconclusive. A number of studies found higher levels of contact to be associated with positive outcomes (Hetherington et al. 1982; Wallerstein and Kelly, 1980) whilst numerous other studies found there to be no association or a negative association (Amato, 1993; Baydar and Brooks-Gunn, 1994; Furstenberg and Harris, 1993; King 1994a; Seltzer, 1994).

Whilst Amato and Gilbreth meta-analysis (1999) did find frequency of contact, captured by frequency of visitation, to be statistically significantly associated with academic achievement and fewer internalising problems, effect sizes were very small, 0.03 and -0.03 respectively. Ultimately, given the weakness of effect sizes, they concluded frequency of contact to be a

poor predictor of child well-being (1999: 564). Interestingly, they did however find the strength of this association to be stronger in more recent studies. More recent UK studies exploring this issue have however continued to produce inconsistent findings. Smith et al. (2001) for example found no association between patterns of contact and children's well-being whilst Dunn et al. (2004) found higher levels of contact to be associated with lower levels of externalising problems. The inconsistency in these particular findings may be partly attributable to differences in samples and the measure of contact employed. A community study of stepfamilies in London was the basis of Smith et al's work (2001) whilst the basis for Dunn et al's research (2004) was the accounts of 162 young children, from a sub-sample of a cohort of children in Bristol, regarding their relationships with their non-resident father.

Adamsons and Johnson's (2013) updated meta-analysis was supportive of Amato and Gilbreth's conclusion that contact is not a good predictor of child well-being with results indicating no statistically significant association between frequency of contact and overall child well-being. Once again it is interesting that a broader measure of contact which included measures of the number of times fathers had seen, talked to, or otherwise had contact with their children, did not produce stronger associations than those found in the 1999 meta-analysis.

The lack of conclusive evidence indicating a positive association between contact and child well-being initially led to conclusions that non-resident fathers had little to offer their children other than financial support. However, the absence of evidence supporting the view that non-resident fathers can make a valuable contribution to their children's lives beyond the financial appeared to contradict the growing body of evidence indicating the benefits to children's well-being of positive father involvement in two parent intact families (see for example, Lamb, 2004). This apparent anomaly led to conclusions that researchers were focussing on the wrong aspects of the non-resident father-child relationship and were therefore failing to capture the true association between non-resident fatherhood and child well-being (Amato and Gilbreth, 1999). It was asserted that simple frequency of contact was not the determining factor of child well-being but rather the quality of the father-child relationship, for which frequency of contact was often regarded as an appropriate proxy (Amato and Gilbreth, 1999: 558). Frequency of contact in fact appears to be a poor proxy for relationship quality. Research on close relationships suggests that frequency of contact is only one aspect of such relationships, others being relationship duration, the nature of the

activities shared together and the strength of emotional ties between the two individuals (Rossi and Rossi, 1990; Silverstein and Bengston, 1997). As noted, studies have typically focussed on capturing simple frequency of direct contact and given little consideration as to the nature of that contact. This simple dichotomy of father presence / absence appears inadequate to capture the complexities of non-resident fatherhood and it is perhaps therefore unsurprising that studies focussing on frequency of contact have failed to yield conclusive evidence of the relationship between non-resident father involvement and child well-being.

2.4.3 Nature and quality of the father-child relationship

Studies of the nature and quality of the relationship between non-resident fathers and their children have provided stronger, more consistent evidence of the relationship between non-resident fatherhood and child well-being. Whilst some evidence indicates that the relationship between non-resident fathers and their children can become peer-like often centring on leisure and recreational activities (Amato, 1987; Furstenberg et al. 1983) which may hinder non-resident fathers' attempts to enact the paternal role, where non-resident fathers do engage with the paternal role, benefits to the well-being of their children have been observed. In their study involving 207 divorced women and their children, Simons et al. (1994) for example, found a positive association between adolescent adjustment following divorce and non-resident fathers' supportive behaviour and appropriate use of praise and discipline. Similarly, in their study of adolescents in the aftermath of relationship breakdown, Buchanan et al. (1996) found those with a close, emotional father-child relationship to be better adjusted than those lacking such a relationship. More recently, Dunn et al (2004) found a close, positive father-child relationship to be associated with lower levels of engagement in delinquent behaviour.

Moreover, Amato and Gilbreth (1999) found the quality of the father-child relationship to be the strongest predictor of child well-being. More specifically, they found both feelings of closeness and authoritative parenting to be statistically significantly associated with greater academic achievement and fewer externalising and internalising problems. However whilst statistically significant, effect sizes for feelings of closeness were modest at .06, -.05 and -.07 for academic achievement, externalising problems and internalising problems respectively. Conversely, with regard to authoritative parenting as characterised by the provision of emotional support, engagement in discipline and the setting of boundaries and a communicative relationship, the results indicated reasonably strong effect sizes at .15, -.11

and -.12 for academic achievement, externalising problems and internalising problems respectively. In light of this, Amato and Gilbreth concluded authoritative parenting to be the strongest most consistent predictor of child well-being.

Adamson and Johnson's (2013) more recent meta-analysis largely echoed these previous findings. The quality of the father-child relationship as captured by measures of father-child closeness, trust and support, was statistically significantly associated with child well-being exhibiting a mean effect size of 0.11. Moreover, involvement in activities which assessed how frequently fathers engaged in child-related activities including putting the child to bed, helping with homework, changing nappies or attending school events was also statistically significantly associated with child well-being with a notably stronger effect size of 0.32.

It would appear that the nature and quality of the father-child relationship is key to child well-being in the context of non-resident fatherhood. This relationship however, does not stand in isolation and is significantly impacted upon by other important features of non-resident fatherhood. For example, having just noted that frequency of contact is a poor proxy for father-child relationship quality it nonetheless remains an important aspect for study. Despite recognition of its limitations, researchers continue to evaluate and measure this element of non-resident fatherhood. In the context of father-child relationship quality, frequency of contact has been shown to be greatly important. Whilst high levels of contact do not necessarily translate into a positive father-child relationship, frequent contact is seen as necessary for such a relationship to develop. One large, national study of US adolescents found a correlation of 0.87 between frequency of contact and positive father-child relationships (King and Sobolewski, 2006). Further studies have found that high levels of contact can counter some of the damaging effects of divorce with frequent contact serving to reassure children of continuing emotional ties with their father (Fabricius and Luecken, 2007; Lauman-Billings and Emery, 2000). Such findings have led to the conclusion that frequent contact, even if only as an aspect of the father-child relationship *"appears to contribute to most children's long-term well-being, even if the quality of father-child relationship is ultimately more influential"* (Amato et al. 2009: 43).

Yet another potential influence on the quality of the father-child relationship is the nature of the inter-parental relationship. One study found the closeness of the father-child relationship to be statistically significantly associated with the inter-parental relationship; levels of

closeness in the former diminishing with the quality of the latter (Esposito, 1995). A subsequent study however found there to be no association between the inter-parental relationship and levels of closeness between father and child (Nicholls and Pike, 2002). Both studies however consisted of unrepresentative sample of non-resident fathers and may have been affected by self-selection bias. Nonetheless the quality of the inter-parental relationship remains an issue for consideration both in relation to the quality of the father-child relationship and as an important influence on child well-being in its own right.

The importance of the father-child relationship to child well-being makes for interesting study in the early years. It has been suggested that duration and physical proximity may be important aspects of a close relationship (Berscheid and Peplau, 1983). Particular difficulties could arise therefore when non-resident fatherhood is experienced in the early years. These fathers may have had little opportunity to establish a close father-child relationship having resided with their child for only a short period if at all.

2.4.4 Nature and quality of the inter-parental relationship

The inter-parental relationship has consistently been found to be associated with child well-being in studies using both large nationally representative samples and smaller scale qualitative studies (Arditti and Bickley, 1996; Dunn et al. 2004; Funder et al. 1993; Gorell-Barnes et al. 1998; Hetherington et al. 1982; Smith et al. 2001; Whiteside and Becker, 2000). Two particular aspects of the inter-parental relationship have been subject to considerable research namely, inter-parental support and conflict. As regards the former, there is evidence to suggest that inter-parental support is positively associated with child well-being. Whiteside and Becker's (2000) meta-analysis of 17 independent samples reported in 12 studies exploring the experiences of young children in the aftermath of divorce found that children whose resident and non-resident parents enjoyed a cooperative relationship exhibited increased cognitive and social skills compared to their contemporaries whose parents did not enjoy such a relationship. Importantly, supportive relations between resident mothers and non-resident fathers have been found to have a positive impact on mothers' emotional well-being (Jackson, 1999). This in turn signifies an indirect effect on children's well-being for mothers' emotional well-being is a known correlate of child well-being.

The issue of inter-parental conflict also appears to be highly relevant to child well-being. Conflict is often an inherent element of relationship breakdown. Studies have found that very

high levels of conflict are common in the initial period following divorce or separation (Fulton, 1979; Hetherington et al. 1982) and can indeed persist for up to three years (Ahrons and Wallisch, 1986; Pearson and Thoennes, 1998; Masheter, 1991). Negative impacts of relationship breakdown for children's well-being have been found to be magnified by inter-parental conflict (Amato and Keith 1991; Amato and Rezac, 1994; Emery, 1982). Indeed high levels of conflict have been found to be positively associated with children's negative outcomes (Amato and Rezac, 1994; Arditti, 1991; Dunn et al. 2004; King, 1994a,b). Interestingly, recent analysis of GUS data suggests levels of conflict are not necessarily associated with frequency of contact (Marryat et al. 2009).

The inter-parental relationship is a particularly interesting aspect of early years non-resident fatherhood. Fathers who are non-resident in the early years may be less likely to have been married to the child's mother and may have been non-resident since the child's birth. This could have significant implications for the inter-parental relationship. There is some evidence to suggest that unmarried non-resident fathers who have previously cohabited with the child's mother are likely to have had a less stable relationship than their previously married counterparts (Osborne et al. 2007) whilst parents who have been neither married nor cohabiting may have had only a brief relationship if any beyond the child's conception. Similarly, previous analysis of GUS data indicated greater levels of instability amongst unmarried parents, with cohabiting parents statistically significantly more likely to have separated in the first five years of the child's life than married parents (Chanfreau et al. 2011). In any event, it is possible that the emotional ties between former spouses may be stronger than those of their unmarried contemporaries. Family systems theory as discussed by Ahrons (1981) and Kerr and Bowen (1988) proposes that former spouses continue to play an influential role in each other's lives following divorce. The emotional connection between former spouses is not thought to be severed by divorce and serves to influence levels of inter-parental support and conflict post-divorce. In the context of non-resident fatherhood commencing at birth or following the breakdown of a cohabiting union, the lesser emotional ties could impact in distinct and perhaps contradictory ways. Weaker emotional ties could result in lower levels of conflict as the emotional intensity of divorce may be less potent where couples have simply cohabited or indeed never resided together. However, weaker emotional ties could result in lower levels of inter-parental support which in turn could lead to higher levels of conflict. Similarly, weaker emotional ties may in fact be equated with

higher levels of inter-parental conflict as the lack of such ties may indicate a lack of mutual trust and confidence. It is of course important to bear in mind that 'conflict' is a continuum of behaviours and associations between emotional ties and conflict may be bound up with where along the scale such behaviours lie.

As is the case with much research in the field of non-resident fatherhood, it can be seen that evidence of the relationship between particular dimensions of non-resident fatherhood and child well-being is far from conclusive. Until recently, strong evidence indicated the importance of child support to child well-being with reasonably strong evidence suggesting that the quality of the father-child relationship and the nature of the inter-parental relationship are further important aspects of non-resident fatherhood in relation to child well-being. Meanwhile, however, frequency of contact remains a poor predictor of child well-being although important reasons continue to merit its study in future research. What is starkly apparent in reviewing the literature on non-resident fatherhood and child well-being is its complexity. Whilst the relationship between four key aspects of non-resident fatherhood and child well-being have been considered in turn here, studies ought not to address these factors in isolation. Indeed, Adamsons and Johnson (2013) found the strongest relationship between non-resident father involvement and child well-being when studies combined multiple types of involvement into a single variable, with the meta-analysis finding a statistically significant mean effect size of 0.38. Interestingly however, in their recent analysis of the MCS Goisis et al. (2016) created a summary measure of contact using seven indicators of contact and found limited evidence of statistically significant associations between contact and a wide range of child outcomes.

Ultimately, however, the four facets of non-resident fatherhood considered here, namely; payment of child support, frequency of contact, quality of the father-child relationship and the inter-parental relationship are inherently connected and the current study therefore encompasses the four in an attempt to help advance knowledge and understanding in the field.

2.5 Limitations and gaps in the existing literature

The existing literature has a number of key gaps which have informed the current study. Firstly, few studies have sought to explicitly test the pathways through which non-resident fatherhood may operate to influence child well-being directly and indirectly via the

potentially mediating influence of economic resources and parental resources. This is a key limitation which the current study seeks to address. Disaggregating the direct and indirect associations between non-resident fatherhood and child well-being is important in terms of advancing knowledge and understanding of the pathways through which firstly, living in a non-resident father household may potentially operate to negatively influence child well-being and secondly, non-resident father involvement may potentially operate to enhance child well-being. It can clearly be seen that existing empirical evidence suggests non-resident father households to be typically characterised by poorer economic resources and parental resources, each of which are in themselves associated with poorer child well-being. As such, it is possible, that much of the negative child outcomes typically characterising non-resident father households may be accounted for by these mechanisms rather than paternal absence per se. In a similar vein, it is possible that non-resident father involvement may be associated with enhanced child well-being indirectly via these mechanisms. This is the basis of the conceptual framework underpinning the research enquiry in this thesis. Whilst existing studies have widely acknowledged these pathways and control for these potentially confounding influences in analyses, few studies have seldom explicitly tested the extent to which firstly, living in a non-resident father household, and secondly, non-resident father involvement may be directly and / or indirectly associated with child well-being. One study exploring the direct and indirect effects of non-resident father involvement for child outcomes has highlighted the usefulness of such an approach to the study of associations between non-resident fatherhood and child well-being (King and Sobolewski, 2006). Using structural equation modelling, the study found a complex network of associations between involvement and child outcomes, with the quality of the father-child relationship and responsive fathering exhibiting direct associations with child outcomes and frequency of contact exhibiting indirect associations with child outcomes via the preceding two aspects of involvement. Whilst offering key insights into the associations between involvement and child well-being, the study considered the potential benefits of involvement in relation to the child only and not in relation to the economic resources and parental resources characterising the household. However, the study nonetheless serves to illustrate the importance of considering both direct and indirect associations as means of developing our understanding of the complex network of associations between non-resident fatherhood and child well-being. Ultimately, despite a continuing interest in the well-being of children in non-resident father households and the continuing emergence of evidence suggesting child well-being to be

typically poorer in non-resident father households and to a somewhat lesser extent, that well-being may be enhanced by paternal involvement (Goisis et al. 2016), existing studies continue to be limited in the extent to which they can explain the pathways through which non-resident fatherhood may be associated with child well-being.

Secondly, there remains a relative lack of attention given to non-resident fatherhood commencing in children's early years. Whilst recent years have seen attempts to address this gap in the literature with studies exploring early years non-resident fatherhood using data from the MCS and the FFS in the US context the increasing prevalence of early years non-resident fatherhood merits continuation and extension of this research. Moreover, there is a distinct lack of research exploring early years non-resident fatherhood in a specifically Scottish context. Recent research using data from the Growing Up in Scotland study was largely descriptive in nature and the study authors themselves noted the potential of GUS data to explore this issue in greater depth (Marryat et al. 2009). Research using the MCS is of course inclusive of Scotland and UK wide studies are an important and interesting addition to the field. However, given that Scotland has a distinct legal and policy landscape to that of the rest of the UK, early years non-resident fatherhood undoubtedly merits consideration in a specifically Scottish context.

Thirdly, a broader limitation exists in the lack of studies of non-resident fatherhood in the UK more generally and not simply in the context of the early years. Much of the existing research originates from the US and as such the differing context between the US and the UK in terms of demographic, social and cultural considerations must be borne in mind when considering the generalisability and applicability of these findings to the UK and more specifically, the Scottish context. Whilst this gap is lessening with increasing analysis of the issue in the UK context, (for example, Goisis et al. 2016; Haux et al, 2015; Platt et al. 2015; Poole et al. 2013), the specific gaps identified in the literature in terms of the relative inattention given to non-resident fatherhood in the early years and examination of direct and indirect pathways between non-resident fatherhood and child well-being have not been the focus of these studies.

Fourthly, whilst there has been increasing use of nationally representative complex survey data in the field of non-resident fatherhood studies, in many studies of non-resident fatherhood, samples are often drawn from the records of solicitors, the courts and family

support agencies. Such cases are likely to reflect only those cases where intervention has been required in negotiating contact which might not represent those cases where such intervention has not been necessary. As such the continued use of complex survey data to explore non-resident fatherhood will continue to benefit development of the field.

Fifthly, much of the research which continues to be influential and widely cited in the field of non-resident fatherhood studies is now somewhat dated. This raises a number of issues. In the first instance, as noted, whilst initial increases in levels of non-resident fatherhood were largely attributable to rising divorce rates, shifting demographic trends such as increasing numbers of non-marital births (GRO,2015), coupled with evidence suggesting cohabiting relationships may be at increased risk of breakdown in children's early years (Greaves and Goodman, 2010; Osborne et al. 2007), have altered the face of non-resident fatherhood with increasing numbers of very young children experiencing non-resident fatherhood. As such, non-resident fatherhood in its 'newer forms' undoubtedly merits its continued place on the research agenda. In the second instance, in terms of quantitative research, continuing methodological advancements present opportunities to continue to progress knowledge and understanding in the field.

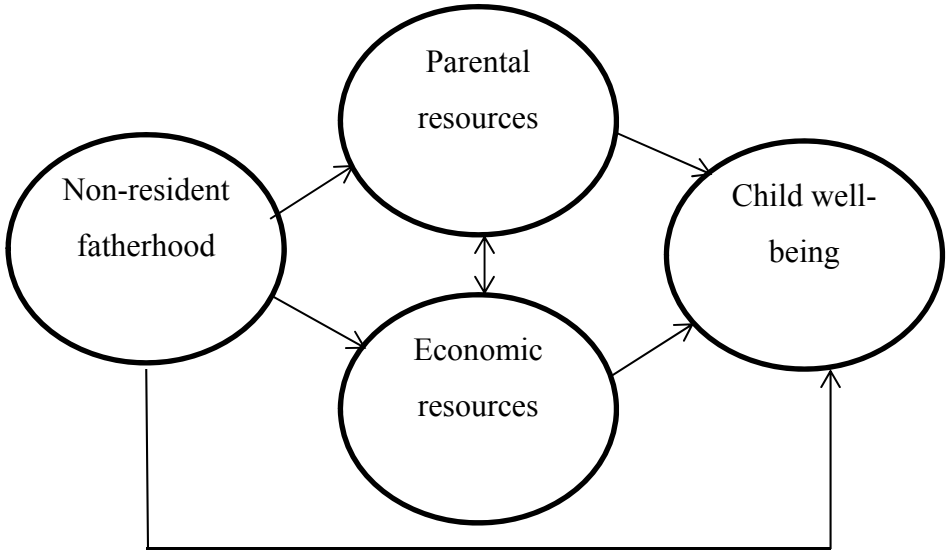
Finally, a key limitation of the current literature is the narrow and restrictive conceptualisation of child well-being typically adopted by existing studies, tending to examine one or two outcomes which are aspects of child well-being but not constituent of it. This is starkly evident in the recent meta-analysis conducted by Adamsons and Johnson (2013). Whilst their meta-analysis included consideration of four measures of child well-being, only two of the 53 studies included considered each of the four measures of well-being whilst twenty considered only one of the four measures. Moreover, as the measures of child well-being examined by Adamsons and Johnson (2013) were dictated to by those used in the existing studies, the four domains of well-being did not provide a comprehensive conceptualisation of child well-being. For example, the authors did not consider physical health, or economic / material well-being both of which are widely recognised as key domains of child well-being. Adamson and Johnson (2013) did in fact initially intend to include physical health as a measure of child well-being but were precluded from doing so as only two of selected studies considered this outcome.

2.6 The conceptual framework

Whilst the preceding discussion of the existing literature revealed the field of non-resident fatherhood studies to be characterised by a mixed bag of findings, taken collectively, one can conclude that child well-being is typically poorer in non-resident father households and that non-resident father involvement may have potential benefits for child well-being. However, as noted, what is less clear and indeed less explored in the literature are the pathways through which associations between non-resident fatherhood and child well-being may operate directly or indirectly via mediating mechanisms. The exploration and examination of these direct and indirect associations between non-resident fatherhood and child well-being are the key focus of this research and underpin the conceptual framework presented in figure 2.1 below.

In short, figure 2.1 illustrates that the research seeks to understand if, and how, non-resident fatherhood might be associated with child well-being directly, and indirectly, via economic resources and parental resources. Consideration has already been given to the key terms economic resources and parental resources, and to the proposed theoretical perspectives underlying their associations with non-resident fatherhood and child well-being. For the remainder of this chapter, consideration is given to the conceptualisation of non-resident fatherhood and child well-being. The chapter concludes with a discussion of each of the key research questions addressed by the study including a statement of the key hypotheses to be tested.

Figure 2.1 Conceptual framework for exploring non-resident fatherhood and child well-being



2.7 Conceptualising non-resident fatherhood in the current research

Considering first the term non-resident fatherhood, the research is concerned with exploring associations between firstly, living in a non-resident father household and child well-being, and secondly, non-resident father involvement and child well-being. How therefore does the research conceptualise the terms 'non-resident father household' and 'non-resident father involvement'? A study on non-resident fatherhood is of course located within the discourses of fathers, fathering and fatherhood more generally, for as with resident fathers, the behaviour of non-resident fathers will likely be shaped and influenced by contemporary ideas and understandings of these concepts (Amato, Meyers and Emery, 2009). Attention therefore turns to the wider field of fatherhood studies.

2.7.1 Father, fathering and fatherhood

The terms father, fathering and fatherhood must be used with caution for they carry with them multiple and at times contested meanings. There is no fixed nor firm understanding of these terms and conceptions of the role of the father and fatherhood have *"changed quite dramatically over the course of western history"* (Dienhart, 1998: 21). To be deemed the father of a child has significant legal and social implications and acquisition of such status is

ultimately a matter of definition. A father can be the biological father of a child. To be the biological father of a child does not imply any involvement in the life of that child. Indeed a man may be the biological father to a child with no knowledge of that child's existence. Alternatively, a man who cares for and nurtures a child is also deemed a father. This man need not have any biological connection to the child; rather it is the act of raising the child which renders him a father. This man is now commonly termed the social father (Hobson and Morgan, 2002). In a similar vein, the term fathering can be seen as encompassing the biological act of fathering a child and the social act of raising a child. As with the term father, the biological and social aspects need not go hand in hand.

Given that the meanings attributed to the term father are varied and multiple, it is important to make clear how this term is used in the current study. This focus of this research is on child well-being in 'non-resident father' households. For the purposes of this study the term non-resident father household refers to a household in which the child's natural father is absent. The term 'natural father' is that used by the Growing Up in Scotland study, which is the dataset used in the research. For the purposes of this study it is assumed that this refers to the child's biological father and the terms biological and natural father are used interchangeably throughout the thesis. Importantly, given that the research seeks to understand whether living in a non-resident father household is directly associated with child well-being through paternal absence, the study distinguishes between two types of non-resident father household, namely lone mother households and those in which the mother has re-partnered. Doing so enables the research to gain a better understanding of whether any associations between living in a non-resident father household and child well-being are attributable to the absence of the child's biological father from the household rather than the absence of a paternal figure.

Having considered what is meant by the term non-resident father household, attention now turns to understandings of the role of the father as the basis for conceptualising non-resident father involvement. Koslowski (2008: 37) notes that fathering practices be they social or biological, *"are very much affected by the dominant culture of fatherhood in a particular time and place"*. This statement alerts us to the complexity and diversity inherent in conceptualising fatherhood. Fatherhood as a concept, is neither fixed nor static, rather it is fluid continually evolving in response to both place and time and the related cultural and societal norms. This continual state of flux has led to the conclusion that fatherhood is

"multifaceted and multidetermined, and more sensitive to contextual factors than mothering" (Flouri, 2005: 14).

The literature exploring the evolution of fatherhood originates largely from the United States. Whilst the father as breadwinner and economic provider was the dominant view of fatherhood for much of the twentieth century and indeed remains the traditional view of fatherhood today (Lamb, 1997), this was not always the case. In the United States during the eighteenth and nineteenth centuries, fathers were regarded as the "moral overseers" of the family (Demos, 1988). Fathers were viewed as the main parent and had ultimate control and power over their children. Divorce was a rarity but in such an event the father would automatically be awarded custody of the children based on the premise that mothers were unfit to properly raise their children. Flouri (2005: 1-2) notes that the position was largely similar throughout much of Europe where the concept of patriarchal authority dominated ideas of fatherhood. Gillis (1997) has claimed that fathers at this time were very much involved in their children's lives and were routine participants in their care and upbringing. Such participation however was largely limited to middle class fathers, with working class fathers being constrained from involvement with their children by their search for work and aristocratic fathers being absent for prolonged spells due to military and civil service commitments. Featherstone however cautions that fathers' active participation in their children's lives at this time ought not to be viewed through rose-tinted glasses, as fathering practices were undoubtedly marked by the exertion of power and cruelty (2009: 42-43).

The advent of the industrial revolution saw fatherhood redefined. The workplace replaced the household as the site of production and the father's role became that of breadwinner (Featherstone, 2009). Industrialisation resulted in a clear gender division of family roles; men were to provide and women were to raise the children and run the household. As a result of these new roles, Dienhart (1998: 22) notes that men were distanced from their children, both physically and ideologically. Views of the father's role as provider and breadwinner became entrenched in much of Western society and still hold premise in current thinking (Lamb, 1997). However, from the 1930s the role of the father moved beyond simply that of provider to that of role model, particularly for sons. Sex role theory was especially prominent in the 1950s and essentially proposed that whilst it was the mother's role to prepare her daughter for her childcare and household duties by being a role model from which her daughter could learn the appropriate behaviour, it was the role of the father to prepare his son to take his

place in the labour market and society at large by again exhibiting model behaviour (Lamb, 1997).

The 1970s was the advent of major change in fatherhood discourses prompted largely by the women's movement and women's entry into the labour market. At the same time, talk of child welfare and a shift from paternal rights to a focus on paternal duties and a recognition of mothers' rights altered views of the father / child relationship (Featherstone, 2009: 48). A 'new' fatherhood ideal came to the fore in which fathers were highly involved in their children's lives and active participants in their lives.

With changing views of the paternal role came increasing interest and evidence of the unique contribution fathers can make to their children's lives (Lamb, 2004). As early as 1975, Lamb suggested that the role of the father is distinct from that of the mother. Mothers undertake the role of caretaker whilst fathers play the role of socialiser, introducing children to the outside world. Positive father involvement in resident father households has been found to benefit children across a range of areas including cognitive, social, emotional and behavioural development and academic achievement, as well as being a protective factor against negative outcomes across these areas (Allen and Daly. 2002 provide a review of this evidence). As with much fatherhood research relatively little attention has been paid to the importance of fathers specifically within the early years (Downer et al. 2008). However, studies which have focussed on this issue suggest fathers to be of considerable importance. As noted, fathers are regarded as providing the link between children and the outside world, preparing children for their entry into the wider world in numerous ways, for example, through linguistically challenging interactions (Lamb and Tamis-LeMonda, 2004) and encouraging development of children's self-awareness and self-discipline (Grossman et al. 2002). Indeed, young children with highly involved fathers have been found to be more inquisitive and confident in engaging with the wider world (Biller, 1993, Pruett, 1997). In addition, children with highly involved fathers have been found to have greater cognitive abilities at six months (Pedersen et al. 1980) and one year (Nugent, 1991) whilst Yogman et al. (1995) found such children to have higher IQs at aged three. Furthermore, greater paternal involvement has been found to result in stronger more secure father-child attachments (Cox et al. 1992). Whilst discussion of the paternal role has by no means been exhaustive it has highlighted the benefits of positive paternal involvement including within the specific context of children's early years.

2.7.2 Parenting – a continuing gendered division?

With a growing evidence base and awareness of the potential benefits of positive father involvement for child well-being, it is interesting and important to consider the extent to which this has translated into greater levels of paternal involvement. Despite the changing role of the father and conceptions of fatherhood, it would appear that parenting and the division of child care continues to be very much a gendered issue. Lamb (2004: 12) claims that persisting identification of fathers with the breadwinning role and mothers with the role of nurturer has served as a continual limit to father's involvement in raising their children. Despite changing ideas and understandings of fatherhood and encouragement of paternal involvement in childcare coupled with women's massive entry into the labour market, changes in the actual distribution of childcare have been slow and rather limited. Quantitative studies measuring men's involvement in family life have shown only a marginal increase despite the huge increase in women's participation in the labour market. Casper and Bianchi (2002) for example, found using a nationally representative sample, that the proportion of time engaged in childcare by married resident fathers relevant to mothers had risen from 0.24 in 1965 to only 0.55 in 1998. Paternal involvement might be expected to be particularly low in the early years. During the early years, children's need for close emotional relationships and nurturing is especially prominent. Social and cultural norms continue to identify such needs with the role of the mother (Lamb, 1997: 7). At an institutional level too, the importance of the mother in the early years was emphasised. For example, for many years in cases of divorce, courts applied the 'tender years' doctrine which presumed that young children were best cared for by their mother (Edward and Griffiths, 1997: 115). Empirical studies of father involvement in the early years in two-parent families however also exhibit increasing levels of involvement. Whilst early studies indicated very low levels of father involvement with their infants (Kotelchuck, 1976; Manion, 1977), more recent studies suggest far greater levels of involvement (Nugent, 1991; Glikman, 2004). Fathers have in fact been said to be at their most accessible and engaged with children during early childhood (Yeung et al. 2001). Higher levels of early years father involvement in two-parent families, does not necessarily translate into higher levels of non-resident father involvement. Combs-Orme and Renkert (2009: 413) observed non-resident fathers to be *"distressingly uninvolved in their infant's lives",* despite reasonably high levels of paternal involvement in two-parent families.

It is evident in the statistics presented in the introductory chapter, that non-resident parenthood illustrates quite markedly the gendered nature of parenting for non-resident parent households are overwhelmingly headed by mothers. An in-depth account of theories purporting to explain why this gendered division continues to exist with regard to both intact and separated families is beyond the scope of this project. However, Lamb (1987) has identified four main areas which may hinder and discourage father involvement in their children‘s lives. Firstly, Lamb suggests that the role of the active father is quite simply one that men feel uncomfortable with and do not wish to assume; secondly, men may find themselves the subject of suspicion by their contemporaries for playing an active role in their children’s lives if the latter do not exhibit similar behaviour; thirdly, work and family life structures do not encourage and may indeed discourage men’s active involvement in family life; finally, law and policy fail to encourage and may actually hinder men from playing an active role in family life. For non-resident fathers the constraints on paternal involvement are likely not only to include those suggested by Lamb, but may be more numerous and perhaps more salient than for resident fathers. As indicated in the literature review, non-resident fathers face additional hurdles to assuming an active role in their children’s lives such as geographical distance from their children, inter-parental conflict, the presence of an additional father figure in their child’s life and perhaps the presence of additional children in their lives if they have themselves re-partnered.

2.7.3 A discourse of dichotomies

So what can we conclude has become of our understanding of the paternal role and more specifically the role of the non-resident father? Whilst the new fatherhood ideal did not negate the need for fathers to continue to provide financially for their children, their investment in their children was no longer limited to a financial one; fathers were expected to spend time engaged with the nurturing and raising of their children, thereby investing emotionally in their children too. Koslowski (2008: 39-40) identifies that this new discourse of fatherhood has become one of dichotomies. Fathers are categorised according to the role they fulfil; they are deemed traditional fathers or non-traditional fathers (Russell, 1983); they are economic providers or they are involved fathers (Gerson. 1993; Hobson and Morgan 2002); they are good dads or bad dads (Furstenberg, 1988). Simple dichotomies are of course rarely representative of reality and mask the complex, multi-dimensional nature of fatherhood. Where therefore do non-resident fathers fall within these dichotomies?

Furstenberg (1988) classifies non-resident fathers as 'bad dads' simply for their physical absence from the household. Consequently, resident fathers are deemed 'good dads' for their simple presence in the household. Of course, the simple presence of a father in the home does not imply that that father is a 'good' father fulfilling his roles as provider and caregiver. Moreover, classifying non-resident fathers as 'bad dads' due to their physical absence from the household is to imply this absence is inherently detrimental to child well-being. Studies exploring the well-being of children in non-resident father households have been limited to the extent that they have tended to explore associations between living in a non-resident father household and child well-being, by reference to the dichotomy of father presence / absence. The current research therefore seeks to move beyond this in exploring the pathways through which living in a non-resident father household may be associated with child well-being, directly via paternal absence and indirectly via economic resources and parental resources. In addition, studies of non-resident fatherhood have been further limited by this dichotomy to the extent to which they focus on the absence of the biological father from the household, as opposed to the absence of a father figure. Whilst the absence of the child's biological father from the household is of course the key focus of the current study, this research attempts to move beyond the dichotomies of presence / absence of the child's biological father by distinguishing between lone mother households and those households in which the mother has re-partnered, thus bringing a new 'father figure' into the household. In this regard, the concept of 'relational fatherhood' is likely to be relevant (Browne, 2013). Looking beyond the legal, social and biological definitions of fathers and beyond the *"economic or symbolic relationships between father and child",* the concept of relational fatherhood focuses on the manner in which fathers relate to their children. Browne describes 'relational fatherhood' as *"a concept intended to capture a basic condition of parenting: time spent personally interacting with a child—physically caring, playing, emotionally engaging, educating, etc."* (2013: 154). Consideration of lone and re-partnered mother houses separately may help further develop our understandings of whether the poorer child well-being typically characterising non-resident father households is associated with the absence of the biological father per se, or alternatively the absence of an individual fulfilling the paternal role.

In terms of the paternal role, early studies of non-resident fatherhood tended to highlight the importance of the non-resident father as economic provider as opposed to involved father.

Indeed, Amato and Gilbreth (1999) suggested somewhat pessimistically, that the findings of early studies indicating positive associations between payment of child support and child well-being, but not between frequency of contact and child well-being, could lead to conclusions that non-resident fathers have little to offer to their children other than money. Dichotomies of economic provider and involved father are of course unlikely to capture the complex reality of non-resident fathering. However, as the literature review indicated, studies of non-resident father involvement have, over time, broadened their conceptualisation of non-resident father involvement beyond these dichotomies to encompass the paternal roles of both economic provider and involved father. Expanding consideration of the non-resident father role in this way has led to conclusions that non-resident fathers do indeed have the potential to contribute more to their children's lives than money (Amato and Gilbreth, 1999; Adamsons and Johnson, 2013). It has also served to highlight that the role of the non-resident father is likely as complex and multi-dimensional as that of the resident father. The current research draws upon this evolution of understandings of the role of the father, both resident and non-resident. Drawing directly from existing studies, the current research conceptualises non-resident father involvement as a multi-dimensional construct encompassing the four aspects identified by the literature as potentially important for child well-being, namely, payment of child support, frequency of contact, the nature and quality of the father–child relationship and the nature and quality of the inter-parental relationship. The current study however seeks to build upon the existing literature by creating a single latent construct of non-resident father involvement thereby exploring all four aspects of involvement in a single model, something which has seldom been done in existing studies. In addition, by exploring the pathways through which non-resident father involvement may be associated with child well-being, directly or indirectly, the research seeks to offer further insights as to the role of the non-resident father. As will be considered in chapter three, both law and policy appear to be primarily concerned with preserving the biological link between father and child. Such an approach appears to be underpinned by an assumption that positive non-resident father involvement is directly beneficial for child well-being. Considering direct and indirect associations between non-resident father involvement and child well-being may offer insights as to whether it may be helpful to construe the role of the non-resident father more broadly in terms of potential benefits to the child, the child's mother and the wider context of the child's household.

2.8 Conceptualising child well-being in the current research

Finally, consideration is given to the conceptualisation and measurement of the key outcome of interest for the study namely, child well-being. Recent decades have seen increasing interest in the idea of 'child well-being' and the concept has become a prominent feature of discourses across academia, policy and practice. The term 'well-being' is now used with great regularity but with perhaps little consensus as to its meaning. As Pollard and Lee (2003: 62) note in their systematic review of the child well-being literature, *"well-being is a term that is commonly used but inconsistently defined"*. This is perhaps unsurprising, for as Pollard and Lee (2003: 62) further note, the concept of well-being has been the focus of studies spanning a range of academic subjects and encompassing individuals and groups of varying ages from varying cultures and communities across a range of countries. The concept of child well-being has evolved considerably in recent decades. Consideration of this evolution by Ben-Arieh (2010) asserts that focus has shifted from concern with child survival to child wellbeing. These advancements in the understanding and conceptualisation of child well-being have been influenced by a number of factors, most notably; the ecological perspective of child development, the 'new' sociology of childhood and children's rights.

2.8.1 The ecological perspective of child development

An ecological perspective of child development is an important aspect of the current research. This approach asserts that children's well-being is affected by a variety of influences and factors across a range of areas. Children's experiences in these areas affect their well-being. These experiences are not isolated but interconnected and experiences in one area affect the other areas (Bronfenbrenner, 1979). The ecological approach asserts that there are spheres of influences on the child's experiences, all of which interact with each other as illustrated in figure one. The child interacts primarily with those influences in his immediate social context known as the microsystem. The key interaction is with the family but the child also engages in a wide range of other interactions with, for example, friends and school. These are direct interactions and have the greatest influence on the child. The second sphere known as the exosystem, consists of the child's social context at a wider level. It encompasses a wide range of influences, for example, the child's extended family, the local community, the parent's workplace and the media. Influences in the exosytem are primarily experienced indirectly through their influence on the structures in the microsystem. The third sphere known as the

macrosystem, consists of the societal context at a wider level. It encompasses a range of influences including cultural values and economic and social conditions. This sphere again indirectly influences the child through its influence on the other spheres. Ultimately all spheres are interlinked; all affect and are affected by each other. The ecological understanding of child development has had considerable influence in the development of our understanding of child well-being. It fostered an awareness that child well-being is influenced by a wide range of factors across a variety of domains and is not restricted to a child's experiences within their immediate family setting.

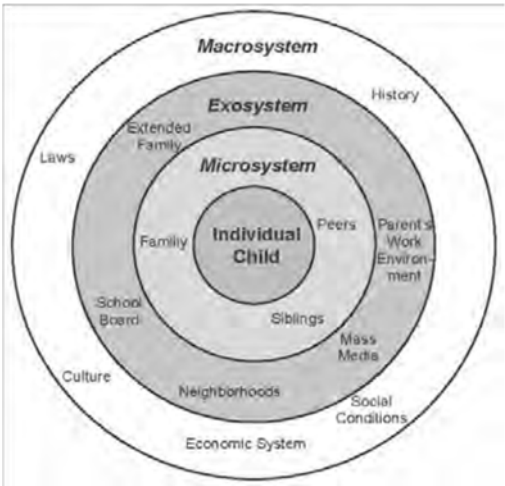


Figure 2.2: Ecological model of child development
Source: Bronfenbrenner, 1979.

In the context of the current research, the very basis of the conceptual framework underpinning the research is influenced by an ecological approach to child well-being as developed by Bronfenbrenner (1979). In seeking to move beyond simple dichotomies of father presence / absence and economic provider or involved father and examining pathways through which non-resident fatherhood may be associated with child well-being the research is based on the premise set forth by Bronfenbrenner that child well-being is affected by a variety of influences and factors. The research also recognises that experiences in one area are not isolated but interconnected with those in one area potentially affecting other areas, for example, economic resources are likely associated with parental resources. In exploring both the direct and indirect associations between non-resident fatherhood and child well-being, the research can offer insights into the influence of non-resident fatherhood in both the child's microsystem and exosystem. Does non-resident fatherhood operate as an influence in the

child's microsystem akin to that of the resident mother; as an influence in the child's exosystem more akin to that of the extended family; or does it indeed operate across both the microsystem and exosystem? This again serves to further our understanding as to the role of the non-resident father. For example, can non-resident father involvement serve to enhance child well-being directly through fulfilment of the paternal role, or can non-resident father involvement serve to enhance child well-being indirectly through supporting the child's mother and the household more broadly?

2.8.2 Approaches to conceptualising child well-being

Recent consideration of child well-being by the OECD (2009) provides a useful framework for considering current understanding and definitions of child well-being. It states that the definition and conceptualisation of child well-being can be broadly separated into two perspectives; child well-being as a multi-dimensional concept and child well-being as a subjective concept (OECD, 2009: 24).

The first approach is to view child well-being as a multi-dimensional concept. From this perspective child well-being is essentially a construct created by researchers. Researchers first select the factors and influences deemed important to child well-being, these are the domains of child well-being. Within these domains, researchers then select a range of indicators through which to assess well-being. This approach is evident in much of the child well-being literature. Pollard and Lee in their systematic review found five domains to be consistently employed in such models of child well-being namely, physical, psychological, cognitive, social and economic (2003: 64). The majority of studies which regard child well-being as a multi-dimensional concept seek to capture well-being through a range of objective and subjective measures. The most common approach appears to involve the employment of multiple separate measures (Pollard and Lee, 2003). These measures use negative and/or positive indicators of well-being across the five recognised domains of well-being, namely; psychological, social, cognitive, economic and physical. The psychological domain is concerned with children's emotional and mental health and measures of self-esteem, depression and anxiety are very often employed to capture this aspect of child well-being. In the social domain indicators of children's family and peer relationships, pro-social behaviours and their interpersonal and communication skills are commonly used to provide a measure of children's social well-being. The cognitive domain is essentially concerned with children's thought processes, including their memory, problem solving, reasoning and decision making

skills. In most studies this is captured through measures of educational achievement and the use of intelligence tests. In the economic domain measures of household income and resources are commonly used to capture children's financial and material well-being. Finally, measures in the physical domain attempt to capture children's general health and can include physical examinations and details of diet and nutrition and exercise and physical activity.

The key problem is that such measures more often than not measure only one or two particular aspects of well-being. For example, indicators of factors such as depression and self-esteem are of course central to well-being but they do not in and of themselves constitute well-being. As a result such studies cannot be said to truly measure well-being, rather only particular aspects of it. In order to accurately measure child well-being, measurement tools need to encompass multiple domains and indicators to reflect the multi-dimensional nature of well-being. In Pollard and Lee's systematic review (2003: 67), 80 per cent of studies measured only one domain of well-being whilst a further 13.1 per cent and 4.6 per cent measured it in two or three domains respectively. Only 2.3 per cent of studies reviewed measured child well-being across four domains thereby providing a more accurate measurement. However even within these studies the domains covered, cognitive, psychological, physical, and social, failed to include children's economic situation and consequently even these studies could not be said to provide a truly holistic portrayal of child well-being.

The second approach to the conceptualisation and measurement of child well-being is the subjective approach. The concept of subjective well-being has featured heavily in recent discourses across academia, policy and practice. Subjective child well-being has been defined as the *"expressed views of children about their personal well-being"* (Bradshaw et al. 2010: 182). Subjective well-being is essentially concerned with children's perceptions and feelings regarding their everyday lives. How happy, contented, satisfied and fulfilled are children with their day to day lives? A subjective approach to child well-being has a number of key strengths, most notably that it is inherently more respectful of a children's rights perspective viewing children as active research participants as opposed to simply research subjects.

The current research adopts the first of these two approaches, and as such 'child well-being' is essentially a construct created by me, the researcher. Defining child well-being as a multi-dimensional construct undoubtedly has its strengths. It allows for a holistic approach to child

well-being recognising that a variety of factors and influences are relevant to well-being and is in-keeping with an ecological perspective of child development. As noted, however, a key criticism of such an approach is that much discretion lies with the individual researcher in creating this construct, potentially leaving it open to arbitrary and uninformed decision-making. In efforts to prevent such criticisms in the current research as far as possible, the study has drawn upon the existing literature in an attempt to create a comprehensive, holistic account of child well-being. Whilst as noted, it is widely acknowledged that there is no universally agreed upon definition of child well-being, the research draws upon the five key domains identified by Pollard and Lee (2003: 64) as consistently employed in multi-dimensional constructs of child well-being namely, physical, psychological, cognitive, social and economic. Each of these domains is considered in the current research under the following headings: cognitive development and ability; social, emotional and behavioural development (thus combining the social and psychological domains); general health; and material situation. In conceptualising child well-being as encompassing these key domains the current research seeks to overcome a key limitation of existing studies of non-resident fatherhood which purport to measure child well-being but actually measure only one or two particular aspects of it. Full details of the selected indicators used to measure each of these domains are presented in chapter four. The domain of material situation however merits further discussion at this stage as it proved somewhat more complex to conceptualise and measure than the other three. As the research examines household economic resources as a mediating variable in the relationship between non-resident fatherhood and child well-being, despite acknowledging the importance of children's material situation as an aspect of their well-being, it was initially intended to exclude this domain from the conceptualisation of child well-being. This decision was informed by both theoretical and practical considerations. It was initially supposed that children's material situation would simply be a reflection of the household economic circumstances and it was therefore unnecessary to explore the material situation of the child as a domain of well-being having accounted for this in measuring the economic circumstances of the household. In addition, it was thought that the two concepts would be too closely correlated to explore within one model. However, further exploration of the issue led to reconsideration of this decision. Some empirical research has suggested that a child's material situation may not be a direct reflection of the wider economic circumstances of the household (Middleton et al. 1997). Whilst the reasons for this are not entirely clear it appears that parents attempt to shield their children from the effects of poverty (Middleton et

al. 1997). In addition, Treanor (2014) notes there to be number of possible explanations as to why measures of household income and material deprivation may not overlap, for example, the lagged effect of income poverty on living standards, access to credit and financial support from family and friends. Consequently, it seemed plausible that the two concepts may not prove to be as highly correlated as anticipated therefore alleviating concerns of including the two concepts within the one model. As a result it appeared both theoretically justifiable and practically possible to include the concept of material situation as a domain of child well-being. Given the rarity with which this aspect of child well-being has been considered in existing studies of non-resident fatherhood this is an important contribution of the current research.

Ultimately, the preceding discussion has served to illustrate that the research has strived to adopt a theoretically informed approach to the conceptualisation and measurement of child well-being. This is a key contribution of the current research to the non-resident fatherhood literature which has been largely characterised by the absence of such an approach and can serve to develop knowledge and understanding of associations between non-resident fatherhood and child well-being. The conceptualisation and measurement of child well-being adopted in the current study is discussed in detail in chapter four.

2.9 Key research questions

Having considered the existing literature and set forth the conceptual framework underpinning the research, consideration is now given to each of the five research questions presented in the introductory chapter. The key aims of the research questions are considered and the central hypotheses to be tested in the analysis chapters are presented.

2.9.1 Research question one

Is early child well-being poorer in non-resident natural father households compared to two natural parent households?

Overall, existing empirical evidence suggests that children in non-resident father households experience poorer well-being across a range of outcomes than their contemporaries in two parent households (Amato and Keith, 1991; Amato; 2001; Pryor and Rodgers, 2001). However as noted, the majority of existing studies have focussed on non-resident fatherhood arising in middle childhood or adolescence following divorce or relationship breakdown, with

a relative lack of attention paid to non-resident fatherhood occurring in children's early years. Given that the context of children experiencing non-resident fatherhood in their early years may be distinct to that experienced at later stages, for example children may have resided with their father for only a short time if indeed at all, it is possible that associations between living in a non-resident father household and child well-being may also differ to those found in middle childhood and adolescence. The aim of the first research question is essentially to contribute to this gap by exploring associations between living in a non-resident father household and child well-being in children's early years. Specifically this research questions seeks to explore whether child well-being is indeed poorer in non-resident father households compared to two natural parent households within the context of the early years. This research question tests the following key hypothesis:

H1: Child well-being is poorer in non-resident natural father households compared to two natural parent households.

This research question has a further important aim in seeking to address the restrictive and narrow conceptualisation and measurement of child well-being typically adopted in existing studies. Informed by the wider child well-being literature, child well-being is operationalised as a multi-dimensional latent dependent variable. The focal independent variable in this research question is the absence of the child's natural father from the household. Importantly, in seeking to move beyond simple dichotomies of father presence / absence, the research distinguishes between non-resident father households headed by a lone mother and those in which the mother has re-partnered. Further details of the operationalisation these concepts are discussed in chapter four, and the analysis based on this research question is presented in chapter five.

2.9.2 Research question two

To what extent is living in a non-resident father household associated with child well-being directly through paternal absence, and / or, indirectly via economic resources and parental resources?

Whilst consideration of existing studies indicated there to be quite clear evidence suggesting child well-being is poorer in non-resident father households compared to two natural parent households, the potential pathways through which this association may operate are less clearly understood and by no means universally agreed upon. This research question seeks to

move beyond the dichotomies of father presence / absence to unpack the associations between living in a non-resident father household and child well-being by exploring the potential pathways through which such associations may operate. In the first instance, in view of increasing evidence indicating the potential benefits of father involvement for child well-being in resident father households (see for example, Lamb, 2010) it might be expected that the absence of the child's natural father from the household is in and of itself detrimental to child well-being. In this regard, this research question explores the direct associations between living in a non-resident father household and child well-being. As noted, however, child well-being is complex and unlikely to be determined by a single factor such as the absence of the child's natural father from the household. This research question therefore explores the indirect associations between living in a non-resident father household and child well-being transmitted indirectly via economic resources and parental resources. The following key hypotheses are tested:

H1: Living in a non-resident natural father household is directly associated with poorer child well-being.

H2: Living in a non-resident natural father household is indirectly associated with poorer child well-being via economic resources and parental resources.

A measure of equivalised household income is used to capture household economic circumstances whilst parental resources are captured by indicators of maternal mental health and selected parenting behaviours, namely levels of mother-child conflict, levels of household chaos and levels of parental supervision. Further details of the operationalisation and measurement of these concepts are discussed in chapter four and the analysis based on this research question is again presented in chapter five.

2.9.3 Research question three

Is non-resident father involvement associated with enhanced child well-being in the early years?

Consideration of existing studies revealed the empirical evidence regarding the associations between non-resident father involvement and child well-being to be somewhat mixed (Amato and Gilbreth, 1999; Adamsons and Johnson, 2013). Despite a lack of conclusive evidence of the benefits of non-resident father involvement, as will be discussed in chapter three, a

general assumption as to the benefits of involvement appears to underpin both policy and law. Again there is a relative lack studies exploring these issues in the context of early years non-resident fatherhood. By seeking to explore the associations between non-resident father involvement and child well-being in the early years, this research question aims to address this gap and allow for critical consideration of the basis of the current legal and policy approach within the specific context of children's early years. The following key hypothesis is tested:

H1: Non-resident father involvement is associated with enhanced child well-being in the early years.

This research question uses the latent construct of child well-being developed in research question one whilst the term non-resident father involvement is operationalised as a multi-dimensional latent construct encompassing the four key aspects of involvement identified as key in the literature review namely, payment of child support, frequency of contact, quality of the father-child relationship and the inter-parental relationship. In conceptualising non-resident father involvement in this manner the research aims to address a further limitation of existing studies typically consider only one or two aspects of involvement. Further details of the operationalisation and measurement of this concept is discussed in chapter four and the analysis based on this research question is presented in chapter six.

2.9.4 Research question four

To what extent is non-resident father involvement associated with enhanced child well-being directly, and / or, indirectly via household economic circumstances and parental resources?

Research question four seeks to build upon the third research question by exploring the pathways through which non-resident father involvement may be associated with child well-being. Whilst existing research has devoted considerable efforts to understanding which aspects of involvement are of greatest benefit to child well-being, the pathways through which involvement may be associated with child well-being have been less explored in the literature. As such consideration of both the direct and indirect associations between non-resident father involvement and child well-being constitute a further important contribution of this research. Adopting the same approach as with research question two, in the first instance, the research explores to what extent non-resident father involvement is, in and of itself, positively associated with child well-being. In the second instance, the research

explores the extent to which involvement is associated with well-being via economic resources and parental resources. This research question tests the following key hypotheses:

H1: Non-resident father involvement is directly associated with enhanced child well-being.

H2: Non-resident father involvement is indirectly associated with enhanced child well-being via economic resources and parental resources.

As with research question two, household economic circumstances are captured by a measure of equivalised household income whilst parental resources are captured by indicators of maternal mental health and selected parenting behaviours namely, levels of household chaos, levels of mother-child conflict and levels of parental supervision. The analysis based on this research question is again presented in chapter six.

2.9.5 Research question five

What circumstances and characteristics are associated with the maintenance of contact and levels of non-resident father involvement in the early years?

The final research question addressed by the study seeks to explore and understand the circumstances and characteristics which may be associated with non-resident fathers' involvement in their children's lives. It is important to note that the decision to pursue this research question was coloured by the findings of the first four research questions rather than arising from initial research interests and consideration of the literature. Based on the premise that non-resident father involvement could potentially serve as a vehicle to improve the poorer circumstances, notably income and maternal mental health, typically characterising non-resident father households, this research question seeks to explore the circumstances and characteristics which may be associated with contact and involvement.

Predictors of contact and non-resident father involvement are numerous. Existing literature indicates a wide range of issues influence levels of contact and involvement including socio-demographic characteristics, situational factors and attitudinal positions (Cooksey and Craig, 1998). What follows therefore, is not an exhaustive account of all of the potentially influential characteristics and circumstances but rather those explored by the current research which attempts to encompass those most commonly explored in the literature in addition to

those which may be of particular significance in the context of early years non-resident fatherhood.

This research question does not seek to test one or two key hypotheses. The following discussion considers how each of the correlates may be associated with the maintenance of contact and levels of involvement in the specific context of the early years. The research explores a wide range of characteristics and circumstances which are categorised as follows: child characteristics and background circumstances, socio-demographic characteristics and situational factors. Details of the correlates explored in analyses are discussed in chapter four and the analyses based on this research question are presented in chapter seven.

Child characteristics and background circumstances

In terms of child characteristics, the current research explores both sex and age. The child's age at the time of the transition to non-resident fatherhood is often hypothesised to be an important correlate of non-resident father involvement although evidence regarding its importance is mixed. It is often hypothesised that levels of involvement will be higher for older children. It is expected that fathers will have greater emotional ties and stronger relationships with older children thereby resulting in higher levels of contact and child support. This hypothesis has been confirmed by a number of studies. Seltzer (1991) for example, using data from a large nationally representative study in the US found that non-resident fathers are likely to have greater involvement with older children, a finding that has found support in subsequent studies (Cheadle et al. 2010; Stephens, 1996). Two recent studies using data from the MCS to examine contact after parental separation, found there to be a greater chance of contact being maintained and more frequent contact with older children (Haux et al. 2015) and higher levels of contact with older children (Goisis et al. 2016). This relationship has however not received conclusive support with some studies having found no association between age and involvement (Furstenberg et al. 1983; Stephen et al. 1993). With particular reference to contact, whilst Cooksey and Craig (1998) too found age to be unrelated to levels of direct contact, older children were found to be more likely to have indirect contact with their fathers than younger children. This is unsurprising and is likely to be largely attributable to the greater ability of older children to engage in indirect contact. Contradictory to all of these findings, the Family Characteristics Study in Australia found levels of contact were highest with young children (ABS, 2011).

With regard to child sex, evidence is again mixed. Some older studies from the US have shown non-resident fathers to engage in greater levels of contact with sons than daughters (Hetherington, 1993; Manning and Smock, 1999; Seltzer, 1991). Recent analysis of the MCS suggested that whilst the likelihood of contact occurring was not associated with the child's sex, the frequency of contact and overnight stays was higher for boys than girls (Haux et al. 2015). It may be as children grow up and gender identities perhaps become more prominent that non-resident fathers are more inclined to be involved with sons rather than daughters feeling they have greater shared interests with sons or regarding their involvement to be of greater importance for sons. Other studies however have found no association between sex and non-resident father contact and involvement (Cheadle et al. 2010; Goisis et al. 2016; Marryat et al. 2009;).

In the context of the current study, GUS attempts to schedule interviews so that children are approximately the same age there is little variation in terms of age in the sample. As such, it seems unlikely that any association between age and the maintenance of contact or levels of involvement will be found. Moreover, as noted, statistically significant associations between age and involvement have tended to be found not only where there is greater variation in the sample but also where the sampled children are older than those in the GUS study perhaps because fathers feel more confident parenting older children than they do infants and young children. In terms of the current analysis, it is therefore not anticipated that either child sex or age will exhibit statistically significant relationships with the maintenance of contact or levels of involvement.

In terms of background circumstances, the research explores a number of issues which are of particular interest in the context of early years non-resident fatherhood in the form of circumstances surrounding the pregnancy. Three correlates are considered namely, whether the pregnancy was jointly planned, paternal feelings on learning of the pregnancy and whether the father attended ante-natal classes. In the context of early years non-resident fatherhood, analysis of both GUS and the MCS has indicated circumstances surrounding the pregnancy and subsequent birth of the child to be of notable importance for levels of involvement. Marryat et al. (2009) found whether the pregnancy was jointly planned and maternal perceptions of the father's happiness on learning of the pregnancy to be statistically

significantly associated with non-resident father involvement. Similarly, Kiernan (2005), found the father's presence at the birth and whether he was on the birth certificate to be statistically significantly associated with paternal involvement. The circumstances surrounding the pregnancy seem an important consideration in the context of non-resident fatherhood in the early years as it is possible that these issues may be tapping into early engagement with and commitment to the paternal role. More detailed consideration will be given to the strengths and limitations of the measures in this regard in the methods chapter. To the extent that these measures are indeed tapping into early commitment to the paternal role, it seems plausible that greater levels of commitment may be reflected in a greater likelihood of maintaining contact and perhaps greater levels of involvement.

A further instance of background information considered is whether the parents were ever married. The marital status of parents at the birth of the child has been found to be an influential factor in levels of non-resident father involvement. Children born to married parents are often hypothesised to have higher levels of involvement with non-resident fathers than children who were born to unmarried parents. A number of studies, using large nationally representative samples have consistently found support for this hypothesis finding that fathers who were previously married to the child's mother exhibit and maintain higher levels of involvement than unmarried fathers (Cheadle et al. 2010; Cooksey and Craig 1998; Furstenberg et al. 1983; King, 1994a; Marryat et al. 2009; Seltzer and Bianchi, 1988; Seltzer, 1991). It is thought that previously married fathers will have stronger emotional bonds with their children, the majority having previously resided with their children for some period of time and having had the opportunity to fulfil the paternal role (Cheadle et al. 2010). Contrary to these findings, in their recent analysis of the MCS looking at contact following parental separation, Goisis et al. (2016) found no statistically significant association between parental relationship status and a summary measure of contact.

Ultimately, it is hypothesised that levels of contact and involvement will be lower where non-resident father were not married to the child's mother.

Finally, the research considers whether the non-resident father has ever resided with the child. This is a particularly pertinent issue when considering non-resident fatherhood in the early years. The involvement of fathers who have never resided with their children has received relatively little attention in the literature. In one study of this phenomenon, Kiernan

(2005), using the first two sweeps of data from the MCS, found that 40 per cent of fathers who were neither married nor cohabiting with the child's mother at the time of birth had no contact with the child by the time the child was nine months old whilst only 29 per cent of these fathers paid maintenance for their child. It is possible that fathers who have never lived with their children will exhibit weaker ties with their children and less commitment to paternal role. Alternatively, mothers may be more reluctant to allow contact or higher levels of involvement due to a lack of confidence in fathers' abilities to care for their children. As such it is expected that where a father has never lived with their child, both the likelihood of contact occurring and levels of involvement will be lower.

Socio-demographic characteristics

In terms of socio-demographic characteristics, the literature review indicated non-resident father contact and involvement to be associated with a range of factors (for example Goisis et al. 2016; Haux et al. 2015). The current research considers a number of such characteristics, namely maternal education, maternal age at the birth of the child, maternal ethnicity, maternal employment and household income.

Firstly, in terms of maternal education, older studies consistently showed educational levels of both mothers and fathers to be positively associated with levels of contact (Arditti and Keith, 1993; Cooksey and Craig, 1998; Maccoby and Mnookin, 1992; Seltzer et al. 1989; Stephens, 1996). It may be that more educated parents are more open to changing ideas of fatherhood and therefore more likely to exhibit increased involvement. However, more recent studies have revealed mixed findings. For example, analysis of GUS data found no association between maternal education and the maintenance or frequency of contact whilst recent analysis of the MCS exploring non-resident father involvement with their nine-month old babies revealed no statistically significant associations between maternal education and the maintenance of contact, frequency of contact, paternal interest in the child and the quality of the inter-parental relationship (Kiernan, 2005; Marryat et al. 2009). More recently, analysis of the MCS of contact at age seven found lower levels of education to be statistically significantly associated with lower levels of contact and involvement (Goisis et al. 2016).

In addition, it is interesting to note that Kiernan (2005) did find a statistically significant positive association between maternal education and fathers' payment of maintenance which she noted may be accounted for by better educated mothers having greater skills in

negotiating financial support. It is worth bearing in mind that the work of Marryat et al (2009) and Kiernan (2005) was cross-sectional thus providing only a snap-shot account of contact and involvement. In their exploration of trajectories of contact over time, Cheadle et al (2010) found a statistically significant positive association between fathers engaging in consistently high levels of contact and maternal education. In terms of the current study, it is hypothesised that higher levels of education will be associated with a greater likelihood of contact occurring and higher levels of involvement amongst those who are in contact.

Secondly, in terms of maternal age at the birth of the child, existing studies suggest this to be an important correlate of contact. Recent analysis of the MCS and GUS found contact to be lowest for those children whose mother was under the age of twenty at the child's birth (Goisis et al. 2016; Marryat et al. 2009). Maternal age at the birth of the child age is likely bound up with a range of issues and characteristics which may influence contact and involvement. For example, babies born to younger mothers are perhaps less likely to have been planned and to have been born within a stable relationship, factors which may serve to hinder contact and involvement. In addition, younger mothers are perhaps likely to have lower levels of education than older mothers and may therefore be less likely to encourage contact and increased involvement. As such, it is anticipated that children of younger mothers will be less likely to be in contact with their non-resident father and, where contact does occur, will experience lower levels of involvement than their contemporaries with older mothers.

Thirdly, as regards maternal ethnicity, research exploring the relationship between ethnicity and non-resident father involvement has been somewhat mixed. Perhaps unsurprisingly, the strongest evidence of any association has been found in US studies which have suggested that black fathers engage in more frequent contact than white fathers (King 1994; Mott 1990; Seltzer1991) and that Hispanic fathers have relatively low levels of contact (King 1994; King et al. 2004; Seltzer and Bianchi, 1988). There is however some evidence from the MCS to suggest that ethnicity may be associated with both the maintenance of contact and levels of involvement. Kiernan (2005) found fathers of mixed race were more likely than white fathers to be in contact and to pay maintenance whilst fathers of black, Indian or 'Other' ethnic origins were less likely to engage in more frequent contact than white fathers. In the context of the current study, it is important to note that within the GUS sample there is very little variation in terms of this variable with some 99 per cent of non-resident father households

headed by a white mother. As such, statistically significant associations between maternal ethnicity and the maintenance of contact and levels of involvement are not anticipated.

Fourthly, with regard to maternal employment, whilst this is not routinely included in analyses exploring correlates of contact and involvement, its inclusion in the current research seems particularly relevant. In the context of early years non-resident fatherhood it seems possible that maternal employment could influence the maintenance of contact or, perhaps more likely, levels of involvement amongst those fathers who are in contact. Mothers in non-resident father households, particularly lone mothers, are typically economically disadvantaged which may necessitate a need to work. At the same time, such mothers are perhaps also more likely to experience difficulties reconciling work and childcare responsibilities, likely even more so than mothers of older children who are at school, which may result in an increased reliance on non-resident fathers for help with childcare. It seems less likely that maternal employment would be a determining factor in whether contact occurs at all but it may be a relevant consideration for levels of involvement amongst those who are in contact. As such, where mothers work it seems plausible that there may be greater levels of non-resident father involvement.

In terms of household income, whilst some early evidence indicated fathers with higher levels of income to exhibit greater involvement in their children's lives (Seltzer and Bianchi, 1988), income is not routinely considered in studies examining correlates of contact and involvement. At a practical level it might be thought that greater financial resources simply allow fathers to contribute more to their non-resident children in terms of monetary support whilst also helping overcome some of the practical hurdles inherent in maintaining contact such as geographical distance. Interestingly in this regard, in one of the few studies considering income, Cooksey and Craig (1998) found no statistically significant associations between paternal income and levels of direct or indirect contact. More recently however, Goisis et al. (2016) found a statistically significant association between household income and levels of contact with lower income being associated with lower levels of contact and involvement. In the current study, it is hypothesised that income will exhibit positive associations with the maintenance of contact and levels of involvement.

Situational factors

Finally, in terms of situational factors, three such measures are considered by the research namely, maternal relationship status, the geographical distance between father and child and the presence of siblings in the household. Firstly, in terms of relationship status, several studies have found levels of involvement between non-resident fathers and their children to diminish upon the child's mother re-partnering (Furstenberg et al. 1983; Juby et al. 2007; Marryat et al. 2009; Seltzer and Bianchi, 1988; Seltzer et al. 1989; Stephens, 1996). Whether this decline is due to mothers or non-resident fathers is unclear. On re-partnering, mothers may be keen to promote the father-child relationship between their new partner and the child and discourage contact with the non-resident father. Mothers may also feel that the non-resident father's involvement, through either time or monetary contributions, is no longer necessary as the child has a new father figure to assume the paternal role (Cheadle et al. 2010). Alternatively, non-resident fathers may choose to limit their involvement, feeling pushed out of the paternal role by the new male presence in the child's household (Cheadle et al. 2010). Non-resident fatherhood in early childhood is again potentially interesting in this context. Where children have lived with their father for only a short time, if indeed at all, emotional bonds with their non-resident father may be somewhat weak. In such circumstances, a new partner may be more willing to assume the role of father as well as being more readily accepted into the role by the child. It is therefore expected that both the maintenance of contact and levels of involvement will be negatively associated with maternal re-partnering.

Secondly, with regard to levels of involvement the research also considers the geographical distance between the non-resident father and child (this information is not available to consider its association with the maintenance of contact).Geographical distance has been found to be an important correlate of levels of involvement (Arditti andKeith, 1993; Cheadle et al. 2010; Cooksey and Craig 1998; Furstenberg et al. 1983; Manning and Smock, 1999; Marryat et al. 2009; Seltzer et al. 1989; Stephens 1996). This is perhaps unsurprising as it seems reasonable that those fathers living further away from their child will exhibit lower levels of involvement, at least in terms of direct contact, due to practical issues such as transport, money and time. It is therefore expected that shorter travel times will be associated with higher levels of involvement. Of course it is important to note that it is possible that those fathers living further away from their children are those who are less likely to fulfil the

role of 'involved' father. Due to the cross-sectional nature of the current analysis, it will not be possible for the current research to comment on the causal nature of any associations found between geographical distance and levels of involvement.

Thirdly, in terms of the presence of siblings in the household, this variable is not routinely considered in studies exploring correlates of contact and involvement. The premise for its inclusion in the current study is that there may be a greater likelihood of contact occurring and higher levels of involvement where there are siblings who share the same non-resident father.

2.10 Conclusion

This chapter has set forth the conceptual framework used in the current study to explore associations between non-resident fatherhood and child well-being. Ultimately, from consideration of existing studies, an overall consensus was deduced that child well-being is typically poorer in non-resident father households relative to two natural parent households and that positive non-resident father involvement can be potentially beneficial for child well-being. It was highlighted that whilst researchers acknowledge that living in a non-resident father household may not be damaging for child well-being per se, and that much of the negative association might be accounted for by the poorer economic and parental resources typically characterising non-resident father households (Amato, 2005), few studies have sought to explicitly test these pathways. The disaggregation of the direct and indirect associations between non-resident fatherhood and child well-being would likely permit a better understanding of how non-resident fatherhood might be associated with child well-being through paternal absence or the poorer circumstances typically characterising non-resident father households and indeed, how paternal involvement might be directly and indirectly associated with enhanced well-being. It is this premise which underpins the conceptual framework adopted by the current research. Attention now turns to the legal and policy landscape of non-resident fatherhood in Scotland.

Chapter 3: Law, policy and non-resident fatherhood

3.1 Introduction

As this thesis considers the potential implications of the research findings for both law and policy, this chapter offers a broad overview of the current official approach to non-resident fatherhood in Scotland. It is of course important to note that what actually happens in practice may well differ to what the legal and policy landscape set forth. Consideration is first given to the legal context of non-resident fatherhood with particular focus on the legislative provisions relating to contact and child support before considering relevant policy developments pertinent to non-resident fatherhood.

3.2 The legal context

Before detailed consideration is given to the domestic legal and policy landscape, the lens of consideration must span wider to encompass the international context within which the domestic framework operates.

International Obligations

In terms of the international framework, two treaties are of relevance to issues of non-resident fatherhood, namely the United Nations Convention on the Rights of the Child (UNCRC) and the European Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR).

United Nations Convention on the Rights of the Child (UNCRC)

In discussing the UNCRC it is important to note at the outset that its provisions have not been incorporated into Scottish domestic law. The UK ratified the Convention in 1991 and is consequently bound by an international obligation to ensure domestic law is compliant with Convention terms. This duty is enforceable only by an obligation on state parties to submit periodic compliance reports to the UN Committee on the Rights of the Child detailing domestic progress in fulfilling and conforming to Convention provisions. Whilst the Convention remains unincorporated in UK law, its provisions are not enforceable as private individual rights in UK courts. The Convention can however be used as an aid to interpretation of domestic legislation. Indeed it is presumed that legislation passed by Parliament is intended to be compatible with the Convention. In other words, in cases of ambiguity as regards domestic legislation where provisions can be read in a manner both

compatible and incompatible with the Convention, the former interpretation will prevail. The UNCRC contains a number of provisions pertinent to the issue of non-resident fatherhood. Consideration will first be given to two of the Convention's most notable rights, namely Articles 3 and 12. Article 3 is concerned with the 'best interests' of the child and states as follows:

Article 3(1) *In all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration.*
(2) *States Parties undertake to ensure the child such protection and care as is necessary for his or her well-being, taking into account the rights and duties of his or her parents, legal guardians, or other individuals legally responsible for him or her, and, to this end, shall take all appropriate legislative and administrative measures.*

The scope of Article 3 is clearly far-reaching. The best interests of the child are to be a primary consideration in *all* actions concerning children. Thus when decisions regarding contact between a child and a non-resident father are at issue, the best interests of the child are to be uppermost in the court's mind. The application of this key principle in Scots law will be subsequently considered with reference to both legislation and case law.

Article 12 is concerned with the views of the child and states as follows:

Article 12(1) *States Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child.*
(2) *For this purpose, the child shall in particular be provided the opportunity to be heard in any judicial and administrative proceedings affecting the child, either directly, or through a representative or an appropriate body, in a manner consistent with the procedural rules of national law.*

Article 12 is similarly wide-ranging in its scope. It affords to the child the right to form and express a view in *all* matters affecting the child taking account of the competence of the child to do so. Thus in decisions regarding contact with a non-resident father, the child who is deemed competent to form and express an opinion on the issue is to be afforded the opportunity to do so. Articles 3 and 12 are two of the Convention's most notable rights, of relevance to all actions and matters involving children not simply issues of non-resident fatherhood. However, a number of additional provisions are also of specific relevance to the issue of non-resident fatherhood.

Firstly, Article 7 provides that children have a fundamental right to a relationship with their parents. It states that:

Article 7(1) *The child shall be registered immediately after birth and shall have the right from birth to a name, the right to acquire a nationality and, as far as possible, the right to know and be cared for by his or her parents.*

More explicitly, Article 9 provides that children have a right to reside with their parents, whilst further providing that where children do indeed live apart from one or both parents they have the right to maintain contact. These rights are however not absolute but are subject to the best interests of the child.

Article 9(1) *States Parties shall ensure that a child shall not be separated from his or her parents against their will, except when competent authorities subject to judicial review determine, in accordance with applicable law and procedures, that such separation is necessary for the best interests of the child. Such determination may be necessary in a particular case such as one involving abuse or neglect of the child by the parents, or one where the parents are living separately and a decision must be made as to the child's place of residence.*
(2) *In any proceedings pursuant to paragraph 1 of the present article, all interested parties shall be given an opportunity to participate in the proceedings and make their views known.*
(3) *States Parties shall respect the right of the child who is separated from one or both parents to maintain personal relations and direct contact with both parents on a regular basis, except if it is contrary to the child's best interests.*

Finally, Article 18(1) effectively provides for joint parental responsibility, stipulating that it is the duty of both parents to care for and raise their child. Furthermore, in discharging this duty, parents are directed to have the child's best interests as their fundamental concern.

Article 18(1) *States Parties shall use their best efforts to ensure recognition of the principle that both parents have common responsibilities for the upbringing and development of the child. Parents or, as the case may be, legal guardians, have the primary responsibility for the upbringing and development of the child. The best interests of the child will be their basic concern.*

These additional Articles essentially provide that children have the right to live with both parents. At the same time, incumbent upon both parents is the duty to care for and raise their children. In circumstances where a child lives apart from one or both parents they have the right to maintain a relationship with both parents. These rights are however, qualified by the overriding principle of the child's best interests.

It is clearly evident that the UNCRC actively promotes the maintenance of relationships between children and non-resident parents. Indeed children are afforded the right to maintain a relationship and more specifically, direct contact with a non-resident parent. The Convention however explicitly states that the maintenance of a parent / child relationship in circumstances of non-residency is subject to the best interests of the child. Furthermore the Convention sets forth no assumption that the maintenance of non-resident father / child relationships is indeed inherently in the best interests of the child. As will be subsequently seen, the influence of the UNCRC, particularly Article 3 and 12 is very much evident in Scots law. Before attention turns to domestic law however, consideration will briefly be given to the second international treaty of relevance to this study, namely the ECHR.

European Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR)

The ECHR was drafted in 1950 with the atrocities of WWII fresh in mind. As such, unlike the UNCRC the ECHR is in no way child-centred but rather it provides basic guarantees to *all* citizens of a range of civil and political rights. The ECHR does however have the advantage of being enforceable in Scots law, its provision having been incorporated into domestic law by the Human Rights Act 1998. The 1998 Act, which came into force in October 2000 requires that Scots law must be compatible with those incorporated rights, known as 'Convention Rights'. Article 8 of the Convention is concerned with the right to respect for private and family life and is the most notable provision pertinent to the issue of non-resident fatherhood. Its terms are as follows:

Article 8(1) *Everyone has the right to respect for his private and family life, his home and his correspondence.*
(2) *There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.*

Whilst the ECHR contains few express references to children, its provisions apply equally to children and adults. As such, the right to respect for private and family life enshrined in Article 8 could be referred to by both children seeking involvement with their non-resident fathers and fathers seeking involvement with their non-resident children.

The domestic framework

Having considered the international obligations incumbent upon domestic law, attention now turns to the legislative framework in domestic law. In terms of non-resident fathers' involvement with their children, consideration will be given to two key issues, namely provision of financial support and contact. Considering first provision of financial support, the duty of parents to financially support their children has long held a place in Scots family law. Traditionally this was dealt with through the law of aliment, the applicable provisions for this duty being currently found in the Family Law (Scotland) Act 1985. However, in 1991, in light of growing concern regarding increasing levels of non-resident fatherhood, the Child Support Act established a separate system for dealing with financial support for the majority of children. Under this system, responsibility for assessment and collection of child support was passed from the courts to the newly established Child Support Agency, now the Child Maintenance Service. Child support applies in the following circumstances. Firstly, there must be a 'qualifying child' which broadly speaking means a child under the age of 16 (s3(1)). Exceptions do apply, for example, where the child is still in education they qualify up until aged 19. Additionally, for a child to 'qualify' one or both parents must be non-resident. Secondly, there must be a 'non-resident parent' defined as a parent who is not living in the same household as the child, where the child has a home with a person with care (s.3(2)). It is important to note that the term parent does not apply to step-parents (s54). Finally, there must be a 'person with care'. This refers to the person who has the child residing with them and who is the child's primary care-giver (s3(3). This is generally the child's other parent. The child support system is essentially applicable to two groups of people, those who must use it and those who choose to use it. A person with care who is in receipt of particular state benefits must authorise the recovery of child support from the non-resident parent and must act compliantly throughout the process of making such a recovery. Alternatively, any person with care (whether a parent or not) or indeed the non-resident parent can apply for a maintenance assessment under the Act (s4(1)). Finally any qualifying child over the age of 12 who is habitually resident in Scotland can apply for a maintenance assessment (s7(1)). There are detailed and complex rules regarding the provision and enforcement of child support with only a brief overview of the basics having been provided here. Of course it is important to note that many agreements about financial support are arranged informally between parties and redress to the legal provisions is unnecessary (MRUK, 2007; Maryatt et al. 2009).

Considering now the issue of non-resident father / child contact, it is again important to note that in the vast majority of cases of non-resident fatherhood, issues of contact are undisputed. Indeed, in Scotland approximately only 10 per cent of residence and contact arrangements are court ordered with the vast majority of arrangements made informally between parents (Wasoff, 2007: 26). This raises important issues for policy makers and practitioners seeking to engage with non-resident fathers and resident mothers and their children as the vast majority make arrangements informally and will therefore be less likely to come into contact with the legal and policy context of non-resident fatherhood. Discussion of the legislative framework which follows is therefore applicable only in cases of disputed contact. There are essentially three distinct types of contact disputes each with their own applicable legal provisions and process, namely family actions, children's hearings proceedings and adoption and permanence orders. Consideration here is given only to the first of these processes, namely cases of disputed contact in family actions as these are the types of order which will most typically arise in situations of non-resident fatherhood. Family actions are actions requesting the court to make an order as regards parental responsibilities and rights. Such actions generally arise in the context of divorce or separation where contact arrangements are not agreed privately between parties. In such cases a contact order determines the level, type and any conditions of contact to take place between a child and a specified adult, usually a non-resident parent. Contact orders and indeed residence orders (an order determining where a child is to live) are applied for and granted to those with 'parental rights and responsibilities' (PRRs). Legislative changes introduced by the Family Law (Scotland) Act 2006 mean that fathers who are jointly registered with the child's mother on the birth certificate, on or subsequent to 4th May 2006, have automatic PRRs as was already the case for all biological mothers and fathers married to the child's mother at the child's birth.
The legal framework governing issues of contact in Scotland is provided by the Children (Scotland) Act 1995. For those with PRRs, contact is both a responsibility *and* a right. Section 1 details the parental responsibility of contact stating:

1(1) … [A] parent has in relation to his child the responsibility – …
(c) if the child is not living with the parent, to maintain personal relations and direct contact with the child on a regular basis …

Section 2 details the corresponding parental right of contact stating:

2(1) … [A] parent, in order to enable him to fulfil his parental responsibilities in relation to his child, has the right – …
(c) if the child is not living with him, to maintain personal relations and direct contact with the child on a regular basis…

It is clear that for those non-resident fathers with PRRs there exists both a responsibility and a right to maintain contact with their child. This echoes the provisions of the UNCRC in seeking to promote the maintenance of contact between non-resident fathers and their children. The legislation however by no means provides non-resident fathers with an indefeasible claim to contact. Three key principles govern proceedings when the court is considering whether to grant an order for contact, namely the welfare principle, the 'minimum intervention' principle and the principle of obtaining and considering the views of the child. It is to consideration of these principles that attention now turns.

Section 11 of the 1995 Act embodies each of these principles and provides as follows:
11(7) … in considering whether or not to make an order … and what order to make, the court:
(a) shall regard the welfare of the child concerned as its paramount consideration and shall not make any such order unless it considers that it would be better for the child that the order be made than that none should be made at all; and
(b) taking account of the child's age and maturity, shall so far as practicable—.
(i) give him an opportunity to indicate whether he wishes to express his views;
(ii) if he does so wish, give him an opportunity to express them; and
(iii) have regard to such views as he may express

Ultimately, the legislative provisions provide no presumption in favour of contact between non-resident fathers and children. In accordance with the welfare principle, in deciding whether to award contact the child's welfare will be the key concern of the court. In addition, in terms of the principle of minimum intervention an order for contact will only be granted if the making of such an order is better for the child than no order being made at all. The minimum intervention principle is central to the philosophy of the 1995 Act which at its core embodies the premise that the courts should refrain in interfering with private arrangements agreed between parents unless it is necessary to do so. Interpretation and application of the legislative provisions ultimately lies in the hands of the courts. However, it is important to note that recent amendments introduced by the Family Law (Scotland) Act 2006 require the court to pay particular attention to issues of 'abuse' when considering whether to make an

order under section 11 of the 1995 Act. The 2006 amendments introduced a statutory duty to consider the need to protect a child from abuse when considering making an order relating to the exercise of parental rights and responsibilities. The term 'abuse' is defined broadly to include *"violence, harassment, threatening conduct and any other conduct giving rise, or likely to give rise, to physical or mental injury, fear, alarm or distress; abuse of a person other than the child; and domestic abuse"*. It is important to note that this amendment in no way creates a presumption against the maintenance of contact in cases of abuse but its enactment does serve to highlight the importance to be attributed to the issue of abuse in the granting of contact orders.

Finally, in-keeping with the UNCRC, the final principle of key importance in decisions regarding contact are the views of the child. Of course the current study is concerned with non-resident fatherhood in children's early years and it is likely in such circumstances that the views of the child are a less pressing concern for the court. Briefly however, it is worth noting that section 11 of the 1995 Act provides that *"a child who is competent to form a view is to be given the opportunity to express his or her views"*. Children are presumed to be competent to form a view from the age of 12 years but can potentially be deemed competent below this age.

Examination of the statutory framework clearly indicates that there is no legislative presumption in favour of non-resident father / child contact. Instead, the best interests of the child are to be the courts' paramount concern resulting in awards for contact being determined on a case by case basis. This would seem fitting given the uncertain state of the empirical evidence surrounding the associations between non-resident fatherhood and child well-being. However, the legislative provisions are merely the starting point for examination of the law. The statutory framework is quite simply that, a framework within which the courts interpret and give practical effect to the legislative provisions. Consideration must therefore be given to reported case law to determine the practical operation of the statutory framework. As noted, in considering whether to grant a s11 order, the court are guided by three basic principles. Firstly, the welfare of the child is to be the paramount concern of the court. Secondly, no order should be made unless doing so is better than making no order at all, known as the 'minimum intervention' principle. Finally, so far as is practicable, the court should have regard to the views of the child, having regard to the child's age and maturity. Of these three principles, the key issue of interest for the current research is the extent to which

the court, when applying the welfare test, regards non-resident father / child contact to be beneficial to children. More specifically, does there in practice operate an assumption that such contact is in the best interests of the child? The discussion which follows considers the approach taken by the courts to this issue.

The welfare principle

The welfare or 'best interests' principle has long been a feature in Scots law. Indeed it has been directed to be the courts' paramount concern in cases relating to parental rights (now parental rights and responsibilities) since the Guardianship of Infants Act 1925. As such, there is an extensive history of its interpretation by the courts. The task of interpretation of the term 'welfare' has proven to be difficult and complex and has been noted to be *"a classic problem of linguistic open texture"* (Edwards and Griffiths, 2006: 137). How therefore has the term been interpreted? Unlike in England, the Scottish courts have been reluctant to develop a legislative checklist of factors to be marked off when considering a child's welfare. Consequently, interpretation has been left entirely to the courts to determine on a case by case basis. Critical consideration will now be given to the courts' interpretation of the welfare principle in cases of disputed contact.

As noted, there is no legislative presumption in favour of contact. Examination of reported case law too reveals no presumption in favour of contact. In other words, there is no presumption that the maintenance of contact is in a child's best interests. Many cases of disputed contact have centred around this very issue; do non-resident fathers have an inherent right to contact based on the intrinsic benefit to children such contact will bring or do fathers have to actively demonstrate that contact will be of benefit to the child. In the past the courts appeared to assume that contact was inherently beneficial to child well-being unless there was compelling evidence to the contrary, for example evidence of abuse or the risk of abduction by the non-resident parent. However, even prior to the 1995 Act, in the case of Porchetta v Porchetta (1986 SLT 105), the courts rejected the idea that there existed a presumption in favour of contact between a child and their non-resident parent. In this case Lord Dunpark explicitly noted that a father simply cannot have an absolute right to contact given that the paramount concern of the court is the welfare of the child. He stated:
"A father does not have an absolute right to access to his child. He is only entitled to access if the court is satisfied that that is in the best interests of the child".

The facts of this case concerned a father who had had little to no contact with his 18 month old son since birth. The mother was strongly opposed to contact. The court held that there was *"not a shred of evidence"* to suggest that contact would be in the best interests of the child and consequently no order for contact was made.

In the subsequent case of Russell v Russell (1991 SCLR 429), the approach of Porchetta was purported to mean that a parent seeking an award for contact had to demonstrate to the court that such an award would be in the best interests of the child. In other words, such an approach essentially required fathers to demonstrate that they had something positive to bring to the child. The simple fact of a biological link was insufficient to discharge this burden. The Porchetta approach was arguably given effect to by the 1995 Act by virtue of the minimum intervention principle. Following the Act's passage, this principle was seen as requiring fathers to demonstrate the positive benefit that contact would have for the child.

The leading case in this area is that of Sanderson v McManus (1997 SC (HL) 55). The facts of this case concerned a natural father, without PRRs who sought an award for contact. Disputed hearsay evidence was led purporting that the father had physically assaulted the child. In submissions for the pursuer, the intrinsic value of the relationship between father and child was asserted. In addition, the father had maintained weekly supervised contact with the child at a contact centre until the termination of this arrangement by the Sheriff at an earlier hearing. The Inner House of the Court of Session held by a 2:1 majority that a biological parent had no 'right' of contact. The onus of proof, it was stated, was on the father to demonstrate that contact was in the child's best interests, an onus which the father in question had failed to discharge. Consequently, the Inner House declined to grant an order for contact. Interesting to note however, is the dissenting judgment delivered by Lord McCluskey who very staunchly asserted that contact should be preserved unless there were strong reasons against it. He spoke in depth of the intrinsic value of the parent-child relationship describing it as:

"…a natural link, the importance of which is felt instinctively; it is a deep and abiding theme in literature, both sacred and profane, and in social and political history. It is a link which is properly understood to have value quite independently of any supposed 'right' in a parent to obtain from a court of law an order allowing 'access' to his or her child".

On final appeal to the House of Lords, the decision of the Inner House was upheld. In affirming that there was indeed to be no application of a presumption of contact, Lord Hope stated: *"The relationship between the natural father and the child can never be dismissed as irrelevant. The natural relationship is a fact of life which it will always be proper to take into account. But the importance which is to be attached to it must vary according to the circumstances. This is a matter which must be decided not by applying any presumption but upon an evaluation of the evidence."*

Consequently, whilst the value of the father-child relationship is clearly recognised, it is simply one factor to be considered by the court in determining whether an award of contact should be granted. The approach to be taken by the court was explained by Lord Hope as follows: *"As with any other factor which the court is asked to take into account, the question is whether contact with the parent has something to offer which is likely to be of benefit to the child's welfare. This question must be examined from the point of view of the child. It may normally be assumed that the child will benefit from continued contact with the natural parent. But there may be cases where it is plain on the evidence that it has nothing to offer at all. There may be other cases where the evidence will show that continued contact is likely to be harmful. Whatever the view which is taken on this matter in the light of the evidence, the child's welfare is paramount. The decision of the court will depend on its analysis of all the factors which bear on the question what is in the best interests of the child."*

In summary, it is ultimately clear that there is no presumption of contact. In accordance with the legislative framework, the paramount concern of the courts must be the welfare of the child. Consequently, continued contact must be demonstrably shown to be in the best interests of the child. Importantly however, Lord Hope articulated that it can be supposed that continued contact will generally serve the child's best interests. The approach of Lord Hope has found support in subsequent cases with the emergence of a general principle that continued contact will normally be conducive to the welfare of the child. Indeed whilst not being bound by the decision in Sanderson v McManus, in the subsequent case of White v White (2001 SC 689), Lord Rodger stated that his judgment paid respect to the observations it raised insofar as they were relevant and approved Lord Hope's *"formulation of the assumption as to the value of a parent's contact with his child."* However, Lord Rodger was at pains to state that this was not reflective of any type of "presumption" but was simply *"a working hypothesis born of human experience".* As such the court is entitled to take account

of the value of continued contact between non-resident fathers and their children without requiring evidence be led in support thereof. In discussing the existence of a general assumption that continued contact is beneficial to the welfare of children, Lord Rodger asserted that Parliament had expressed an intention for such an assumption to essentially be the starting point for the courts in determining whether or not to grant an award of contact. He stated that in placing upon parents the responsibility to maintain personal relations and direct contact, Parliament had expressed belief of the general principle that continued contact is in children's best interests. According to Lord Rodger such a belief is also expressed in Article 9 of the UNCRC. Lord Rodger stated: *"… [O]ne can infer from section 1(1)(c) that Parliament has proceeded on the general principle that it conduces to the welfare of children if their absent parent maintains personal relations and direct contact with them on a regular basis. … … [T]his general principle is to much the same effect as part 9.3 of the United Nations Convention on the Rights of the Child which has been ratified by the United Kingdom. … Parliament has itself recognised that there is a limit to the extent to which parents can be expected to comply with the responsibilities laid upon them. They cannot be expected to do so if it is impracticable, for instance, because they are working far from home. Similarly, there may be particular circumstances where the discharge by a parent of his parental responsibilities would not in fact operate in the interests of the child. … … Parliament therefore places a limit on the parental responsibilities and does not require that a responsibility which is intended to be for the benefit of the child should be exercised so as to work to his detriment. But that necessary qualification does not detract in any way from the general principle which is to be deduced from the provision in para (c): that it is conducive to the welfare of children if their absent parents maintain personal relations and direct contact with them on a regular basis."*

Despite the assertion that Parliament intended to assert the general principle that contact is conducive to the welfare of children, Lord Rodger noted that this general principle had to be considered in light of the best interests of the child on a case by case basis. He described the court's task as follows: *"The court must consider all the relevant material and decide what would be conducive to the child's welfare. That is the paramount consideration. In carrying out that exercise the court should have regard to the general principle that it is conducive to a child's welfare to maintain personal relations and direct contact with his absent parent. But the decision will depend on the facts of the particular case and, if there is nothing in the*

relevant material on which the court, applying that general principle, could properly take the view that it would be in the interests of the child for the order to be granted, then the application must fail."

In a supplemental acquiescent opinion, Lord McCluskey offered his description of the court's task: *"[T]he possibility and the advantages of maintaining the link between the father and his daughter fall to be taken into account when the court comes to make the judgment required of it under the 1995 Act; but, however its importance may be assessed in the circumstances of any particular case, it is one factor among many. It may be determinative; it may not. It must always be a matter of weighing all the material bearing upon welfare and the interests of the child."*

Overall, the key conclusion to be drawn from the existing case law is that the child's welfare is the paramount consideration of the court. The courts do not apply a presumption of contact when considering the child's best interests. However, the courts have indicated support for the 'general principle' set forth by Lord Rodger, in White v White that *"it is conducive to the welfare of children if their absent parents maintain personal relations and direct contact with them on a regular basis"*. Importantly, this principle must be viewed in light of whether contact is, in fact, in the child's best interests. Ultimately, when applying the welfare principle, the courts are not guided by any checklists or presumptions but rather carry out a balancing exercise on the basis of the evidence presented. Whilst Tisdall et al. (2013) note that this approach can result in the decision-making process appearing arbitrary or unpredictable; they commend it for allowing the court to decide each case on its own particular merits. Finally, in concluding this overview of the legal landscape it seems important to highlight the possibility that decisions in particular cases may potentially also be influenced by practical considerations such as access to high quality legal advice and the availability of legal aid.

3.3 The policy context

Having considered the relevant legislative provisions, attention now turns to the policy context of non-resident fatherhood. It is important to note that unlike laws, government policies cannot be enforced by the courts. Given that non-resident fatherhood has undoubtedly long been a source of concern for politicians and policy makers, it is somewhat

surprising to note that there are few policies in Scotland relating specifically to non-resident fathers. Notably however, Scottish policy has issued advice and information aimed at educating separating parents on how best to handle their separation so as to cause children minimum distress and upheaval in the form of the Parenting Agreement for Scotland (Scottish Executive, 2006). The Parenting Agreement and associated guidance developed by the Scottish Government in conjunction with family support organisations, is aimed at facilitating an amicable separation and promoting the child's welfare as parents' primary concern. Whilst acknowledging that particular circumstances such as domestic abuse may preclude the maintenance of relationships being maintained, the key message in this document appears to be that contact and the maintenance of a relationship with both parents are highly beneficial to children:

"Most children benefit from maintaining real and lasting involvement with both parents, so you should plan living arrangements which will allow this to happen…The time spent with each parent should be sufficiently often and for long enough to help parent and child to strengthen the bond beneficial to both of them…..Whatever arrangements you come to, remember that your children need to feel that both of their parents are actively involved in their lives. You should each agree to encourage your children to enjoy the time they spend with the other parent and promote the strengthening of the bonds between them. (Scottish Executive, 2006: 5-6)

Of further interest and importance in the context of this research, an annex to the guidance contains a summary of the law relevant to family actions. Specifically, the guidance sets forth five principles informing court decisions in family actions:

i) In any decision about a child, the paramount consideration is what will be in the best interests of the child.
ii) Both parents enjoy and have clear, equal responsibilities and rights in respect of their children. These continue beyond the child's 16th birthday. Both parents, whether separated or together, should exercise these parental responsibilities constantly and consistently.
iii) A court order should not be made unless it would be better in all the circumstances of a case to make one.
iv) In any decision about children, their views and wishes must be taken into account. The extent to which these wishes will guide the decision will vary according to their age and maturity.
v) Unless the contrary can be proved, it is in children's best interests that they maintain significant relationships with both parents, whether they are living together or apart. (Scottish Executive 2006: 22)

Principles one, three and four are straightforward summarising the 'welfare' principle, the principle of 'minimum intervention' and the importance to be attributed to the voice of the child in proceedings affecting them. Each of these principles was discussed earlier in this chapter. Principles two and five however potentially raise some concerns in terms of the information presented to parents and others who may be referring to the guide for information. In the first instance, as regards principle two, it has already been seen that fathers do not automatically have PRRs in relation to their child. Whilst details to this effect are subsequently provided, stating this as a general principle could be potentially misleading for parents consulting the guidance. Moreover, of particular interest in the context of the current research, is principle five. Whilst earlier consideration of existing caselaw did reveal the courts to have indicated support for a general principle that the maintenance of contact is beneficial for child well-being, the courts have not however suggested that there exists a burden of proof to be discharged by the party opposing contact that the maintenance of contact would *not* be beneficial to the child's well-being. Use of the phrase *'unless the contrary can be proved'* in the guidance however, arguably creates such an impression. Ultimately therefore, the guidance possibly creates the impression that the courts apply a presumption in favour of the maintenance of contact when in fact the courts have clearly indicated that no such presumption is applied.

Overall, the guidance clearly enshrines the assumption that the maintenance of contact between non-resident parents and their children will generally serve the best interests of the child. Interestingly, although not unique with regard to government issued guidance, the Parenting Agreement guide at no point provides an evidential basis for such an assumption by reference to empirical studies. Finally, what again appears apparent is that policy, in the form of the Parenting Agreement, appears to be primarily concerned with non-resident fatherhood following relationship breakdown, with little attention being paid to non-resident fatherhood commencing at birth. Indeed little differentiation as to the age and stage of the child at the time of separation is evident in the Parenting Agreement. Given the potentially distinct context of non-resident fatherhood in the early years it may be that policy ought to consider this issue in its own right.

Having noted that there are few policies relating to non-resident fathers, it is important to clarify that the lack of policy relating to non-resident fathers is in fact a reflection of the lack

of attention paid by Scottish policies, until recently, to fathers more generally. Writing prior to the launch of Scotland's National Parenting Strategy in 2012, Clapton stated that *"fathers are rendered invisible in key government policies on parenting"* (2012: 21). This claim was evidenced by numerous examples of major policies on parenting such as the 'Curriculum for Excellence – parents as partners' document (2010), National Guidance for Child Protection in Scotland (2010) and the Early Years Framework (2009). Clapton noted that whilst such documents used gender neutral terms such as 'parent', they implicitly excluded fathers as all photos of parents excluded fathers. Moreover, where fathers were specifically discussed it tended to be in a negative context, for example, the National Domestic Abuse Delivery Plan (2008). Clapton suggested that development of the National Parenting Strategy could be a starting point for the inclusion of fathers in Scottish Government policy (2012: 22).

In the subsequent National Parenting Strategy (2012), the Scottish Government did indeed recognise the lack of specific attention previously paid to fathers in the policy context. The strategy which states its core purpose to be "*to act as a vehicle for valuing, equipping and supporting parents to be the best that they can be so that they, in turn, can give the children and young people of Scotland the best start in life"* (2012: 4) set forth a number of specific commitments to Scotland's fathers, with specific mention of non-resident fathers. This included a broad commitment to *"better represent fathers, including those who live apart from their children, in our policies and services"* (2012: 8). More specific commitments to fathers are set forth throughout the strategy including a focus on fathers, including non-resident fathers, and male carers in the promotion of the Government's 'PlayTalkRead' campaign (2012: 21) and a promotion of the role of fathers in their child 's health and development through public health nurse services (2012: 28). Moreover, the strategy commits to providing targeted support to groups *"facing additional challenges that impact on day-to-day parenting"* with fathers noted to be one such group (2012: 35). The strategy specifically refers to Article 9 of the UNCRC which sets forth the right of children to maintain contact with both parents where parents do not live together, and states making policies and services more 'dad friendly' to be a priority for the Government (2012: 35-36).

Finally, of great interest and importance in the context of the current research, whilst making a specific commitment to support non-resident fathers, the strategy acknowledges the absence of evidence suggesting that non-resident parenthood is inherently detrimental to child well-

being stating: *"Whether children have always only had one parent, their parents have divorced, they were never married or one of their parents has died, there's no evidence to suggest that children of lone parents automatically do any worse in life than those with two."* The strategy goes on to acknowledge however, non-resident parent households headed by a lone parent potentially face a number of difficulties and challenges stating: "*Their parents however, have told us that having sole responsibility for the roles of breadwinner and carer can, at times, make their role much more difficult as they juggle caring for children, maintaining child contact with the absent parent, seeking/retaining employment, managing finances and so on."* (2012: 36-37). These statements capture quite neatly a number of key aims of the current research namely furthering knowledge and understanding of the nature of associations between non-resident fatherhood and child well-being, and the potential pathways through which such associations may operate.

Following the inception of the National Parenting Strategy, fathers, in all their forms, certainly seem to have risen higher up the policy agenda. The Scottish Government has supported a number of organisations, including Families Need Fathers, Children in Scotland and Men in Childcare to undertake projects and initiatives with a specific father focus. Attesting to this growing interest in fathers, 2016 has been declared the first 'Year of the Dad' in Scotland. Supported by the Scottish Government, Fathers Network Scotland the key organisation behind this has described the 'Year of the Dad' as a *"year of activity focussed on embracing the potential of fathers and father figures and promoting their importance in child development"* (Fathers Network Scotland, 2016). In light of this it seems possible that the position of fathers on the policy agenda may be set to rise even higher. Ultimately, the increasing acknowledgement of, and interest in, fathers across Scottish policy provides an interesting and timely context for this thesis and offers valuable opportunities for disseminating its findings to a broad and varied audience.

Chapter 4: Data and Methods

4.1 Introduction

This chapter provides a detailed account of the data and methods employed in the study. Discussion centres on a number of key issues. Firstly, consideration is given to the strengths and limitations of secondary quantitative analysis. Secondly, consideration is given to the dataset used in analyses, namely the Growing Up in Scotland study, including details of sampling, data collection, attrition, weighting and discussion of its strengths and weaknesses in the context of the current research. Thirdly, the operationalisation and measurement of key concepts employed in analyses is discussed before finally considering the methods of statistical analysis used in the research.

4.2 Secondary quantitative analysis

It is important to note that use of the Growing Up in Scotland longitudinal study was a condition of the funding for this PhD. As such, it was pre-determined that the research use quantitative methods to undertake secondary analysis of a large national dataset. However, as will be illustrated, the use of secondary quantitative analysis is both an appropriate and useful approach in the context of the current research and GUS is an excellent dataset with which to answer the study's key research questions. Broadly speaking, the use of quantitative secondary analysis of the Growing Up in Scotland study enables the research to provide nationally representative evidence of the relationships between non-resident fatherhood and child well-being. Additionally, the use of quantitative methods allows the study to provide evidence of broad patterns and trends and produce generalizable findings (de Vaus, 2001). In addition, there are a number of benefits associated with the use of secondary quantitative analysis. Firstly, large-scale national studies are generally conducted by professional social researchers and are consequently of a high standard. The Growing Up in Scotland study (GUS) is funded by the Scottish Government and conducted by the Scottish Centre for Social Research (ScotCen). The standing of these organisations means that the dataset is regarded as a reliable, high quality dataset. Secondly, the GUS dataset has been cleaned and coded with detailed technical reports providing in depth details of these processes, allowing for maximum time to be dedicated to data analysis. Thirdly, the study explores the experiences of children living in non-resident father households and such sub-group analysis necessitates use of a large sample to ensure robust statistical estimates (Dale et al. 1988). Ultimately, it has

been said that the greatest benefit of secondary analysis is that it offers the researcher "*economies of time, money and personnel*" (Hakim, 1982: 1). This is a particularly pertinent consideration in the context of PhD research. GUS is an easily accessible, large-scale nationally representative survey providing high quality data on a scale which would not have been feasible had I collected my own data given the time and financial constraints associated with PhD research.

Of course secondary quantitative analysis is not without its limitations. Whilst specific limitations of the GUS dataset will be subsequently considered, there are a number of key weaknesses common to secondary analysis which must be borne in mind. Dale et al. (1988) note that large scale government funded surveys such as GUS are generally collected by government for their own purposes. This is certainly the case with GUS. Whilst the study is intended to be of use more broadly, including in academic research, its principle aim is to provide information and evidence for Scottish policy-making. This has a number of important implications for the current study. Firstly, the data are not collected to meet the specific aims of the current research. As such, there is information of interest to the study which is simply not collected in addition to there being a number of questions which may have been asked differently had the current study undertaken primary data collection. Secondly, topics and questions are subject to change according to policy concerns and interests. Such changing interests coupled with practical considerations such as keeping the survey to an acceptable length for respondents can result in removal of questions / topics thereby interrupting the longitudinal nature of the data. Whilst the analyses in the current study are largely cross-sectional, the findings would undoubtedly benefit from further consideration from a longitudinal perspective. As will be seen however, there are a number of instances where development of the current findings in this way is precluded due to an unfortunate absence of longitudinal data. It is important to note that these limitations are by no means unique to the current study but are commonly faced by researchers undertaking secondary analysis of large-scale surveys. Ultimately however, in the context of the current research, the considered strengths of secondary analysis outweigh the limitations.

4.3 The Growing Up in Scotland study

As noted the Growing Up in Scotland (GUS) study is the dataset used to conduct analyses. In-depth information regarding the survey design is provided by the official user guide for the GUS dataset (Corbett et al. 2007) but key details of the study will be provided here. GUS was commissioned in 2003 by the then Scottish Executive Education Department to address a lack of Scottish longitudinal data focussing on the early years experiences of children and their families. GUS is tracking the lives of several cohorts of children from their early years, throughout childhood and into adulthood. The principal aim of the study is to provide information and evidence to support Scottish policy making. GUS collects a wealth of information across a range of key domains including: cognitive, social, emotional and behavioural development, physical and mental health and wellbeing, childcare, education and employment, home, family, community and social networks, and involvement in offending and risky behavior. The study was launched in 2005 and currently comprises three cohorts of children. The structure of the study is summarised in table 4.1.

Table 4.1: Structure of GUS study

	Age at interview							
Year	10 months	2	3	4	5	6	8	10
2005/06	BC1		CC					
2006/07		BC1		CC				
2007/08			BC1		CC			
2008/09				BC1		CC		
2009/10					BC1			
2010/11	BC2					BC1		
2012/13							BC1	
2013/14			BC2					
2014/15								BC1
2015/16					BC2			

CC = child cohort BC1 = birth cohort 1 BC2 = birth cohort 2

The child cohort comprises approximately 3000 children born between June 2002 and May 2003. Four ‘sweeps’ of data have been collected from this cohort when children were aged just under three years to just under six years. Presently there are no plans to collect further data from this group.

Birth cohort one comprises approximately 5000 children born between June 2004 and May 2005. Data have been collected annually from this cohort between the ages of ten months and just under six years and then periodically until the children were in primary six.

Birth cohort two comprises approximately 6000 children born between March 2010 and February 2011. Data have been collected from cohort when children were aged ten months, just under three years and just under five years.

Throughout the thesis, the data are referred to in terms of the sweeps used. It is helpful therefore to clearly explain the sweeps in terms of the approximate ages of the study children. At sweep one birth cohort one were approximately ten months; at sweep two the children were approximately two years; at sweep three the children were approximately three years; at sweep four the children were approximately four years; at sweep five the children were approximately five years old.

4.3.1 Sampling

GUS uses an area-based sampling frame based upon data zones, small geographical output areas used in the Scottish census to report small area statistics. Data zones were aggregated to provide an average of 57 births per area per year. The aggregated data zones were clustered by local authority areas and stratified by the Scottish Index of Multiple Deprivation from which 130 areas were then randomly selected. A sample of 12390 children was selected based on their date of birth using Child Benefit records held by the Department for Work and Pensions. With an uptake of approximately 97 per cent, Child Benefit records provide an excellent sampling frame for a study such as GUS (Corbett et al., 2005).

Following selection of the 12390 eligible children, 1621 children were excluded by the DWP. Exclusions included those cases considered ‘sensitive’ and those where children had been sampled for other research in the preceding three years. A list of the remaining 11309 children was passed to the contractor, ScotCen. Of those 11309 children, a further 1166 were deemed ‘out-of scope’ primarily due to incorrect addresses or children being ineligible. From the final ‘in-scope’ sample of 10413 children a response rate of 80 per cent was achieved, accounting for 62 per cent of all originally eligible children. Of the final achieved sample of 8075, 5217 babies comprised birth cohort one and 2858 toddlers comprised the child cohort. The current research uses data from sweeps 1-5 for birth cohort one only. The achieved samples for the birth cohort one for sweeps 1-5 is presented in table 4.2.

Table 4.2: Birth cohort one sweep information

Sweep	Year	Achieved sample
1	2005-2006	5217
2	2006-2007	4512
3	2007-2008	4193
4	2008-2009	3994
5	2009-2010	3833

Source: GUS sweeps 1-5

4.3.2 Data collection

The survey interviews are conducted in the child's home with the child's main carer, predominantly the child's mother in approximately 99 per cent of cases. In terms of this key aspect of data collection, it is worth pre-empting now concerns as to the suitability of this dataset to conduct research about non-resident fathers given that data are not collected directly from non-resident fathers. The limitations of GUS in this regard are subsequently discussed in detail in relation to specific measures. Whilst the limitations of relying largely on maternal reports must be borne in mind, it is also important to note that the key focus of the current research is the well-being of children in non-resident father households. As such, as the resident parent, mothers are in a key position to provide valuable information in terms of child well-being. Whilst ideally data would have been collected from both resident mothers and non-resident fathers, the strengths of the GUS dataset in the context of this research, details of which will be subsequently considered, are not outweighed by this limitation. Interviews are conducted using laptop computers (known as CAPI –Computer Assisted Personal Interviewing). CAPI is associated with improved item response rates and greater accuracy compared to the Paper and Pencil Interviewing (PAPI) often used in surveys (de Vaus, 2002: 123). Interviews were entirely quantitative comprising predominantly closed questions including a self-completion section where participants input their responses into the questionnaire (known as CASI – Computer Assisted Self-completion Interviewing). Data collection commences in the April of the relevant year and is carried out over a period of fourteen months. In order to ensure that the sample children are approximately the same age at the time of interview, the sample is issued in twelve monthly waves at the beginning of each month and is in field for a maximum of two and a half months (Corbett et al., 2005).

4.3.3 Non-response and attrition

As with all longitudinal studies, GUS suffers from attrition. As table 4.3 indicates, rates of attrition are relatively low with a response rate for birth cohort one at sweep 5 of 92 per cent of all eligible cases which amounted to 73 per cent of all sweep one cases (Bradshaw et al, 2010: 8).

Table 4.3: Birth cohort one response and attrition rates

	No. cases issued	Achieved interviews	Response rate	As % of sweep 1 achieved
Sweep 1	6583	5217	79%	100%
Sweep 2	5217	4512	86%	86%
Sweep 3	4665	4193	90%	80%
Sweep 4	4394	3994	91%	77%
Sweep 5	4177	3833	92%	73%

Source: Adapted from Bradshaw et al. 2010: 8.

Indeed the low levels of attrition are a key strength of the GUS dataset. Whilst such relatively low levels of attrition may assist in strengthening the external validity of the research (de Vaus, 2001: 135), attrition nonetheless remains an issue of potential concern for GUS in terms of the validity of the study. Attrition in longitudinal studies is concerning for a number of reasons. Firstly, it reduces sample size thereby affecting the precision of estimates. Secondly, it can result in biased estimates as attrition is typically disproportionately higher amongst disadvantaged sub-groups of the population (Ruspini, 2002).

Whilst levels of attrition are relatively low for a study of this kind, analysis of those cases who have 'dropped out' of the study at sweep 5 raises concerns regarding the representative nature of the sample and potential issues of non-response bias. For example, households most likely to discontinue involvement in the study are those living in the most deprived areas, those where no parent or carer is in employment or where at least one parent or carer is in part time as opposed to full time employment, those living in rented accommodation and those with younger mothers under the age of twenty at the child's birth (Bradshaw et al. 2010.). This raises a number of issues in the context of this research. There is evidence to suggest that not only is non-resident fatherhood more prevalent in deprived households but also that within such non-resident father households, the experience of non-resident fatherhood is more likely to be 'negative', characterised by lower levels of contact and involvement (see for example Kiernan, 2005; Marryat et al. 2009). Consequently, a loss of these households will not only reduce the sample size of non-resident father households

potentially impacting upon the generalizability of the research findings but may also potentially introduce bias into the research findings by painting a more 'positive' experience of non-resident fatherhood than is actually the case.

Ultimately, attrition is a very real concern for longitudinal studies such as GUS and is perhaps particularly pertinent in the context of this research which analyses the typically disadvantaged sub-group of children with non-resident fathers. Due to the cumulative effects of attrition, at each subsequent sweep of the study, the remaining sample becomes less representative of the population from which it was drawn. The potential limitations and concerns posed by attrition are however by no means unique to GUS but common to all longitudinal studies. Indeed analysis of non-response in the Millennium Cohort Study revealed attrition to be associated with similar trends and characteristics as in GUS (Hansen, 2008). In an attempt to correct for non-response bias, the GUS survey team have developed longitudinal and cross-sectional weights which will now be considered.

4.3.4 Weighting

Issues of non-response and attrition coupled with the fact that the GUS sample is a complex survey sample means it is essential that weights are applied if inferences are to be made about the wider population from which the sample was drawn. The GUS survey team has calculated a number of weights. Firstly, cross-sectional weights attempt to account for the distribution of the sample compared to the population as a whole. Secondly, longitudinal weights attempt to account for attrition from the sample. Two additional weights are calculated to account for, firstly the clustered, and secondly, the stratified nature of the area based sampling frame used for GUS. Combinations of the relevant weights are applied throughout this research. Presentation of all statistics throughout the thesis highlight which weights, if any, have been applied.

4.3.5 The suitability of GUS for this research

In addition to the general benefits of conducting secondary analysis of a large-scale dataset such as GUS, GUS has a number of strengths commending its use in the specific context of the current research. In the first instance, a key strength is that GUS is a population sample. In other studies of non-resident fatherhood, samples are often drawn from the records of solicitors, the courts and family support agencies. Such cases are likely to reflect only those cases where intervention has been required in negotiating contact which might not represent

those cases where such intervention has not been necessary (Marryat et al 2009: 1). Indeed the representative nature of the study enhances the potential to generalise from the research findings thereby potentially enhancing the external validity of the research (de Vaus, 2001: 28-29). Of course as noted, issues of non-response and attrition must be borne in mind when considering the purported representativeness of the GUS sample.

In the second instance, as noted, GUS provides a sufficiently large sample size on which to undertake sub-group analyses of those children living in non-resident father households. Indeed GUS is the only Scottish study collecting the range of necessary data with a large enough sample to support such analysis. Table 4.4 indicates that approximately one fifth of children at each sweep had a non-resident father.

Table 4.4: Percentage of birth cohort one with a non-resident father

Sweep 1	20.6
Sweep 2	20.8
Sweep 3	21.3
Sweep 4	21.4
Sweep 5	22.4

Source: GUS Sweeps 1-5
Percentages based on weighted data.

A further fundamental strength of GUS in the context of this research is the wealth of information collected as regards both non-resident fatherhood and child well-being. The array of available measures allowed the research to provide a more comprehensive understanding of child well-being and to adopt a broader conceptualisation of non-resident father involvement than has typically been the case in existing studies.

The wealth of information collected by GUS also allowed a number of potentially important mediators identified in the literature, namely household income, maternal mental health and parenting behaviours to be considered in analyses. Finally, the wide-ranging data collected by GUS allowed analyses to control for a multitude of potentially confounding factors thereby serving to strengthen the external validity of the research and the robustness and value of its findings (de Vaus, 2001: 29).

Despite all the considered strengths of the dataset in the context of this research, it is important to acknowledge that other datasets may indeed have been better suited to this study, most notably the Millennium Cohort study. The MCS follows children from across the

UK but has a boosted Scottish sample (n=2370 at sweep one) thereby permitting analysis of Scottish specific characteristics and trends. In the context of the current research the MCS exhibits some strengths over GUS. For example, MCS contains a number of interesting variables relevant to the current study not collected by GUS such as more detailed information regarding in-kind support in addition to a more direct measure of the father-child relationship. However, it is important to note that GUS does offer a number of advantages over the MCS. Firstly, Scotland has a distinct legal and policy system to that of both England and Wales and Northern Ireland. GUS has a uniquely Scottish focus and is driven by Scottish policy needs rendering it more appropriate to the Scottish context. In addition, the sample size of GUS is considerably larger than the Scottish element of MCS. At sweep one of both studies the number of children in GUS was more than twice the number of children in the Scottish sample of the MCS therefore allowing for greater claims of generalizability and strengthened validity and reliability of the study's findings.

4.3.6 Ethical considerations

It has been noted that *"it is sometimes assumed that secondary analysis raises few (or no) ethical considerations"* (Institute of Education, 2011). However even with anonymised datasets there is the risk of identifying individuals should analysis become very detailed and specific. GUS goes to considerable lengths to ensure anonymity of participants by excluding or recoding any variables which have the potential to identify individuals. In addition the only geographical variables included in the archived dataset are those relating to area urban-rural classification and the Scottish Index of Multiple Deprivation (Corbett et al, 2007: 11), neither of which were employed in the current research. Consequently, ethical issues as regards the potential identification of participants did not pose a problem for the research.

However, the research does raise ethical considerations. The subject of this research is a highly sensitive topic and non-resident father households, in particular lone mother households, are subject to stigmatisation in UK society. Consequently, great care and attention has to be given to the presentation and dissemination of the research findings. Given the complexity of the methods used and the subsequent complexity of some of the findings, it is of particular importance to ensure that the research is not misrepresented thereby stigmatising further, non-resident father households.

4.4 Samples used in analyses

Before consideration of the operationalisation and measurement of the key concepts used in analyses, it is important to clearly set out the samples used for each of the analyses presented in the thesis, considering the exclusion and inclusion criteria, and which data sweeps they draw on. Due to the statistical methods used (see section 4.7 for details), different aspects of analyses have varying sample sizes and therefore exact sample sizes are not provided here. Information regarding sample sizes for particular aspects of analysis is presented in each of the relevant tables in the analyses chapters.

In chapter five, the analysis explores associations between living in non-resident father household and child well-being. In doing so it compares child well-being across non-resident father and two natural parent households. The sample used in this analysis includes all households in which the respondent is the natural mother. As will be seen when discussing the operationalisation and measurement of key concepts, the analysis in this chapter draws upon data from sweeps one to five.

In chapter six, the analysis explores associations between non-resident father involvement and child well-being. As will be discussed, due to the manner in which the data were collected, the analysis was limited in being able to consider only those cases where the child was reported to have some form of contact with the non-resident father. Further driven by data considerations, the analysis considers associations between non-resident father involvement at age four and child well-being at age five. The sample used for this analysis therefore comprises only those children who had contact with their non-resident father at sweep four and who were still living in a non-resident father household at sweep five. Again, only those cases where the respondent was the natural mother were included. Analyses in this chapter draw upon data from sweeps one to five.

In chapter seven, there are two distinct strands to analyses. Firstly, the analysis explores associations between the selected correlates and whether or not contact occurs between the child and their non-resident father at age four. For this analysis, the sample includes all children living in a non-resident father household at sweep four. Only those cases where the respondent is the natural mother are included in the sample. The analysis draws upon data from sweeps one to four.

Secondly, the analysis explores associations between the selected correlates and levels of non-resident father involvement at age four for those cases where contact has been maintained. For this analysis, the sample includes all children living in a non-resident father household who are reported to have some form of contact with their non-resident father at sweep four. Again, the sample includes only those cases where the respondent is the natural mother. The analysis draw upon data from sweeps one to four.

Further details of the particular measures used will now be considered.

4.5 Operationalisation and measurement of key concepts

Having discussed the suitability of GUS to conduct the current research, consideration will now be given to the specific variables of interest used to conduct analyses. Operationalisation of the key concepts 'child well-being' and 'non-resident father involvement' and the selection of mediating variables, control variables and potential correlates of non-resident father involvement has been informed by both theory and existing empirical evidence.

4.5.1 Indicators of child well-being

As noted, the current research takes a broader view to the conceptualisation of child well-being than is typically adopted in studies of non-resident fatherhood. There is a somewhat piecemeal approach to the conceptualisation of child well-being in the existing literature, with many studies purporting to capture child well-being whilst actually only measuring one or two dimensions of it. This research seeks to provide a holistic account of child well-being and adopts the perspective of child well-being as a multi-dimensional concept. In this regard, GUS is an excellent dataset given the range of child well-being indicators collected.

The research uses multiple indicators, presented in table 4.5, to explore child well-being at age five. These variables were used in a confirmatory factor analysis to construct a four factor model of child well-being (see section 4.7 for details of this method). The four factors were hypothesized to represent the distinct domains constituent of child well-being identified in the literature namely; social, emotional and behavioural development, cognitive ability and development, physical health and material situation (Pollard and Lee, 2003).

Table 4.5: Indicators of child well-being

Measure	Domain of well-being	Sweep collected
BAS Picture Similarities	Cognitive development and ability	Sweep 5
BAS Naming Vocabulary	Cognitive development and ability	Sweep 5
SDQ Emotional symptoms	Social, emotional and behavioural development	Sweep 5
SDQ Conduct problems	Social, emotional and behavioural development	Sweep 5
SDQ Hyper-activity and inattention	Social, emotional and behavioural development	Sweep 5
SDQ Peer problems	Social, emotional and behavioural development	Sweep 5
SDQ Pro-social behaviour	Social, emotional and behavioural development	Sweep 5
General health	General health	Sweep 5
Short-term illness	General health	Sweep 5
Long-standing illness or disability	General health	Sweeps 1-5
Accidents and injuries	General health	Sweeps 1-5
Access to a garden	Material situation	Sweep 5
Internet access	Material situation	Sweep 5
Continuous use of a vehicle	Material situation	Sweep 5
Hand-held games console	Material situation	Sweep 5
Outings / trips	Material situation	Sweep 4

Source: GUS sweeps 1-5

The descriptive statistics for the child well-being indicators for the samples used for analyses in chapters five and six are presented in tables 4.6 to 4.9 at the end of this section.

Social, emotional and behavioural development

Children's social, emotional and behavioural development is measured by five scores from the widely used standardised assessment tool, Goodman's Strengths and Difficulties Questionnaire (Goodman, 1997). The SDQ is included in the self-completion section of the interview to be completed by the respondent, who was in all cases for the purposes of this research, the child's mother. It was first used with the birth cohort at sweep four when the children were 46 months and at each subsequent sweep thereafter. The SDQ is suitable for use with 3-16 year olds and is a short questionnaire consisting of 25 questions measuring the following aspects of child development: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and pro-social behaviour (Goodman, 1997). Each developmental aspect receives its own score and a total score is calculated

through the sum of all the individual scores apart from pro-social behaviour. In all domains, a higher score suggest greater difficulties apart from pro-social behaviour where a lower score indicates greater difficulties. For the purposes of analyses the pro-social score was recoded so that higher scores are indicative of poorer pro-social behaviour. The GUS dataset provides details of the individual items, the aggregate scores in each domain and a total difficulties score. The initial confirmatory factor analysis in chapter five uses the sweep 5 aggregate scores in each domain as continuous variables. This allows children's social, emotional and behavioural development to be explored in detail across the distinct areas of emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and pro-social behaviour thereby providing a more nuanced understanding of this domain of child well-being than would be achieved by simply examining children's total difficulties score. The full SDQ questionnaire can be viewed in appendix A to the thesis.

Use of the SDQ has a number of potential limitations which must be borne in mind. As noted the SDQ is completed by the child's mother. As such, reports are subjective which may lead to differential reporting of similar states of social, emotional and behavioural development. There are a number of factors which could potentially influence how a mother responds to the SDQ including maternal mental health, age, culture and socio-economic status. In addition, it is possible that responses to the SDQ may vary according to the day / time and particular circumstances surrounding the assessment. Despite these limitations, the SDQ is used regularly in assessments of children's social, emotional and behavioural development, featuring for example in the MCS, and clinical evaluations have found it to be a valid, reliable and consistent tool for the detection of social, emotional and behavioural difficulties (Mathai et al. 2002, 2003, 2004).

Cognitive development and ability

Children's cognitive development and ability is captured by two measures, the BAS Picture Similarities and Naming Vocabulary assessments. These assessment tools form part of the British Ability Scales Second Edition (BAS II) and were completed by the birth cohort at sweeps 3 and 5 when the children were aged 34 and 58 months. The sweep 5 measure is used in the current research. BAS comprises a range of individual assessments of cognitive ability and educational achievement and whilst these assessments are normally employed in a classroom or clinical setting by educational psychologists, the particular tools employed in GUS have been adapted for survey use (Corbett et al. 2007: 6). The Naming Vocabulary

measurement tool assesses young children's spoken vocabulary and consists of a booklet of coloured pictures which the child is asked to name. The score achieved can be indicative a range of skills: expressive language skills, vocabulary knowledge, general language development, retrieval of names from long-term memory and level of language stimulation. However, it is important to be aware that a low score may not necessarily be reflective of poor cognitive development but may simply reflect the child's reluctance to speak. The Picture Similarities measurement tool assesses young children's reasoning ability. The assessment tool comprises a booklet with four images on each page and a set of cards each portraying a single image. The child is shown the row of pictures in the booklet and given a card to place under the picture with which it has something in common. The score achieved can be indicative of a range of skills: non-verbal problem solving, visual perception and analysis, ability to attribute meaning to pictures, ability to develop and test hypotheses, use of verbal mediation and general knowledge. However, it is again important to be aware that a low score may not be indicative of concerns regarding cognitive development but may simply reflect impulsiveness on the child's part.

It is important to be aware that a child's performance during assessments may be influenced by a number of contextual factors. For example, the rapport with the interviewer, the child's level of anxiety about completing the assessments, levels of motivation in undertaking the assessments and the time and place of assessment. Despite these caveats, the BASII assessments are said to produce 'robust' scores (Hill, 2005: 90) and are used regularly in studies seeking to measure cognitive ability and development. Both assessments featured for example, in the Millennium Cohort Study. GUS provides details of the normative scores derived from the standard BAS tables and defined with reference to the standardisation samples used in developing the assessments. These normative scores are used in analyses.

General health

Children's general health is measured by four indicators. Firstly, at all five sweeps respondents were asked to rate their child's health on a scale of very good, good, fair, bad or very bad. Specifically respondents were asked: ***"****How is [childname's] health in general? Would you say it was ...1 Very good, 2 Good, 3 Fair, 4 Bad, 5 Or very bad?"*

Respondent reports for this measure at sweep 5 will be used in analyses thus providing a picture of children's general health at age five.

Secondly, at each sweep respondents provided details regarding any short term illness or health problems experienced by their child in the previous year. Respondent reports at sweep 5 were used to construct a measure of the number of short term illnesses or health problems experienced by their child in the 12 months prior to interview thus providing a more detailed insight into children's physical health at age five than that provided by respondent reports of children's general health alone.

Thirdly, at each sweep respondents provide details of any long term illness or disability affecting the child. At sweep five respondents were asked: *"When we spoke to you last time, you said that [childname] had a longstanding illness or disability. Can I just check, does [childname] still have this longstanding illness or disability? 1 Yes, child still has this illness, 2 No, child no longer has this illness"*. For those who had not previously reported a long term illness or disability, respondents were asked: *"Does [childname] have any longstanding illness or disability? By longstanding I mean anything that has troubled him over a period of time or that is likely to affect him over a period of time? 1 Yes, 2 No"*. A binary variable indicating whether the child has a long term illness or disability at age five was computed with the aim of providing a broader picture of children's general health.

Finally, respondents are questioned at each sweep as to whether the child has had an accident or injury for which he/she was taken to the doctor, dentist, health centre or hospital in the 12 months prior to interview. On an affirmative response to this question respondents are questioned as to how many such accidents / injuries had occurred. Specifically, respondents were asked: *"Most small children have accidents at some time. Since we last saw you, has [Childname] had an accident or injury for which he has been taken to the doctor, dentist, health centre, or hospital? If 'Yes' - How many accidents?"* Responses to this question from sweeps 1-5 were combined to provide a count of the total number of accidents / injuries experienced by the child from birth to age five requiring medical assistance.

The indicators of general health suffer collectively from one notable limitation; all information is provided by the child's mother. This raises a number of potential concerns. For example, in the context of the measure of general health, the subjective nature of reports means that mothers may perceive their child's health differently, leading to differential reporting of similar health statuses. A range of factors may influence maternal perceptions of their child's health including socio-economic status, culture and their own physical and

mental well-being. The measures of the number of health problems experienced by the child and the number of accidents and injuries sustained pose additional concerns regarding issues of recall and social desirability. In terms of recall, mothers are asked to remember details of the number of health problems and accidents and injuries over the previous twelve months and as such the data may suffer from some recall bias. As regards social desirability concerns, mothers may feel reporting a large number of illnesses or accidents and injuries will reflect poorly upon their parenting skills, potentially leading to under-reporting of such incidents. Nonetheless the selected measures provide a broad account of children's general physical health, an important aspect of well-being not commonly explored in studies of non-resident fatherhood and are very similar to health measures collected by comparable studies such as the MCS.

Material situation

Children's material situation is measured by five indicator variables. In selecting appropriate indicators of material situation the research sought to examine those measures specifically relevant to and representative of the child's situation as opposed to the household as a whole. Typically used measures such as household income were not selected not only because this measure is used as an indicator of the household economic circumstances but also because as noted, this may not be directly indicative of the child's, or indeed the wider household's, material situation (Middleton et al. 1997; Treanor, 2014). The selection of measures was influenced by qualitative research with children and young people conducted by the Children's Society (2012) to inform development of an index of material well-being. The resultant index contained ten indicators: access to a garden/outdoor space, clothes to fit in, monthly family trips or days out, annual family holidays, cable/satellite TV, a family car, money to save, weekly pocket money, a personal music player and designer or brand name trainers. Using GUS data it was not possible or indeed appropriate to include all of these indicators to conceptualise material situation in the current study. In the first instance, the current study explores child well-being at age five whereas the research by the Children's Society was undertaken with children aged 8-15. Consequently a number of items on the list are arguably not applicable to children at age five, such as weekly pocket money and money to save on a monthly basis. Similarly, possession of items such as branded trainers and clothes 'to fit in' are again arguably less applicable to young children. In the second instance, a number of indicators would have ideally been included as measures of children's material

situation in the current analysis but were precluded from being so due to lack of data, for example, whether the child has an annual family holiday and monthly family outings.

Five items however, with a basis in this index, were selected as indicators of children's material situation. Firstly, at sweep 5, respondents were asked: *"Do you have access to a garden? 1 Yes, 2 No"*. A binary variable coded 0 for yes and 1 for no is included in analyses. Secondly, at sweep 5 respondents were asked: *"Do you, or any members of your household, at present own or have continuous use of any motor vehicles? 1 Yes, 2 No"*. A measure of whether the household has continuous use of a vehicle (coded 0 for yes and 1 for no) is also included. Thirdly, whilst a measure of whether the child has a personal music player is not available in the GUS, a measure of whether the child has a games console is available at sweep 5. This is arguably analogous to the personal music player measure and it appears likely that the two tap into a similar aspect of material well-being as both are indicative of possession of technological goods and was consequently chosen as an indicator variable (coded 0 for no and 1 for yes). The fourth selected variable is a sweep 5 measure indicating whether the household has satellite/cable TV (coded 0 for no and 1 for yes). Both of the preceding measures were derived from answers to the following question: *"Do you have any of the following in your household?*

> Desktop computer or PC

> Laptop

> Internet access

> Handheld games console

> Other games console

> None of these"

Finally, as noted, the GUS data does not include a measure of monthly outings/trips. However at sweep four, information about the whether the child had visited a range of places / undertaken a range of activities in the preceding year was collected. Specifically, respondents were asked: *"Can you tell me which of the following places or events [childname] has visited since [month of interview] last year?*

>The library (not including the school library)

>A live performance such as a musical concert, play or pantomime

>A swimming pool

>An art gallery, museum or historical site

>Zoo, aquarium or farm (Not including cases where the child lives on a farm)

>Cinema

>Athletic or sporting event in which ^he was not a player

>Religious service or event

>None of these"

A variable was computed indicating the total number of these places visited / events attended in the preceding 12 months.

Ultimately, whilst there are a number of variables which would have been useful and perhaps more pertinent measures of children's material situation that were not available in GUS, the available indicators certainly provide an insight into the material situation of children and the household as distinct from household income.

Table 4.6: Descriptive statistics for continuous child well-being indicators for chapter five analyses

Two natural parent and non-resident father households								
	Count		Mean		Std. Dev.		Min	Max
Measure	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted		
Emotional symptoms	3509	3725	1.27	1.21	1.50	1.45	0	9
Conduct problems	3511	3726	1.76	1.68	1.45	1.42	0	10
Hyper-activity / inattention	3501	3716	3.74	3.61	2.23	2.29	0	10
Peer problems	3509	3724	1.08	1.02	1.36	1.35	0	8
Pro-social behaviour	3510	3725	8.20	8.22	1.67	1.65	0	10
Picture similarities	3428	3647	87.72	83.07	11.795	11.657	10	119
Naming vocabulary	3433	3650	109.02	109.89	15.340	15.038	10	161
Number of health problems in last 12 months	3545	3755	1.67	1.66	1.07	1.06	0	9
Number of accidents/injuries	3545	3755	1.01	0.95	1.39	1.299	0	19
Number of types of outings in the last 12 months	3545	3663	3.51	3.64	1.42	1.38	0	6

Source: GUS sweeps 1-5
Note: Where data are weighted, sweep 5 longitudinal weight is applied.

Table 4.7: Descriptive statistics for categorical child well-being indicators for chapter five analyses

Two natural parent and non-resident father households				
	Count		Percentage (%)	
Measure	Weighted	Unweighted	Weighted	Unweighted
General health				
o Very good	2636	2873	74.3	76.5
o Good	728	717	20.5	19.1
o Fair	157	141	4.4	3.8
o Bad	22	22	0.6	0.6
o Very bad	3	2	0.1	0.1
Child has a long-term illness or disability				
o Yes	626	629	17.7	16.8
o No	2919	3126	82.3	83.2
Household has continuous access to a vehicle				
o Yes	2938	3285	83.0	87.6
o No	603	466	17.0	12.4
Household has a garden				
o Yes	3339	3579	94.3	95.4
o No	203	172	5.7	4.6
Household has internet access				
o Yes	2366	2547	88.1	90.1
o No	318	279	11.9	9.9
Household has a handheld games console				
o Yes	2090	2166	77.9	76.6
o No	594	660	22.1	23.4

Source: GUS sweeps 1-5
Note: Where data are weighted, sweep 5 longitudinal weight is applied.

Table 4.8: Descriptive statistics for continuous child well-being indicators for chapter six analyses

Non-resident father households where contact occurs								
	Count		Mean		Std. Dev.		Min	Max
Measure	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted		
Emotional symptoms	480	382	1.43	1.37	1.57	1.50	0	8
Conduct problems	480	382	2.09	2.01	1.48	1.45	0	8
Hyper-activity / inattention	478	380	4.34	4.21	2.33	2.34	0	10
Peer problems	480	382	1.31	1.25	1.53	1.51	0	8
Pro-social behaviour	479	381	8.11	8.20	1.68	1.65	2	10
Picture similarities	461	368	80.80	81.45	12.04	11.42	44	119
Naming vocabulary	462	369	105.74	106.40	14.55	14.59	10	151
Number of health problems in last 12 months	487	386	1.82	1.82	1.18	1.14	0	7
Number of accidents/injuries	487	386	1.34	1.24	1.85	1.74	0	19
Number of types of outings in the last 12 months	457	386	3.23	3.36	1.45	1.47	0	6

Source: GUS sweeps 1-5

Note: Where data are weighted, sweep 5 longitudinal weight is applied.

Table 4.9: Descriptive statistics for categorical child well-being indicators for chapter six analyses

Non-resident father households where contact occurs at sweep four				
	Count		Percentage (%)	
Measure	Weighted	Unweighted	Weighted	Unweighted
General health				
o Very good	321	265	65.8	68.7
o Good	125	91	25.6	23.6
o Fair	36	26	7.4	6.7
o Bad	6	4	1.2	1.0
Child has a long-term illness or disability				
o Yes	88	71	18.1	18.4
o No	399	315	81.9	81.6
Household has continuous access to a vehicle				
o Yes	258	226	53.0	58.5
o No	229	160	47.0	41.5
Household has a garden				
o Yes	433	348	88.8	90.2
o No	63	38	11.2	9.8
Household has internet access				
o Yes	293	234	76.6	78.0
o No	90	66	23.4	22.0
Household has a handheld games console				
o Yes	320	246	83.5	82.0
o No	63	54	16.5	18.0

Source: GUS sweeps 1-5
Note: Where data are weighted, sweep 5 longitudinal weight is applied.

4.5.2 Indicators of non-resident father involvement

As attention now turns to the indicators of non-resident father involvement, it is important to emphasise at the outset that all the available indicators are based upon data collected solely from the child's resident mother. The limitations of this are subsequently considered in relation to specific indicators. The literature review highlighted four aspects of non-resident father involvement as key to understanding the relationship between non-resident father involvement and child well-being, namely; payment of child support, frequency of contact, quality of the father-child relationship and the inter-parental relationship. As such, the research uses multiple indictors, presented in table 4.10, to develop a latent construct of non-resident father involvement capturing each of these four aspects. It is important to note that these detailed measures of non-resident father involvement were only collected from those respondents who answered affirmatively to a filter question asking: *"Does [Childname] currently have any contact with his natural father?"*

Table 4.10: Indicators of non-resident father involvement

Measure	Aspect of involvement measured	Sweep collected
Provision of formal financial support	Provision of financial support	Sweep 4
Provision of informal financial support	Provision of financial support	Sweep 4
Frequency of purchase of books, toys or other equipment	Provision of financial support / nature of the father-child relationship	Sweep 4
Frequency of overnight stays	Frequency of contact / nature of the father-child relationship	Sweep 4
Frequency of outings / trips	Frequency of contact / nature of the father-child relationship	Sweep 4
Frequency of direct contact	Frequency of contact / nature of the father-child relationship	Sweep 4
Frequency of indirect contact	Frequency of contact / nature of the father-child relationship	Sweep 4
Level of paternal interest in the child	Nature of the father-child relationship	Sweep 4
Maternal perception of relationship with non-resident father	Nature of inter-parental relationship	Sweep 4

Source: GUS sweep 4

Provision of financial and material support

Details of financial support are captured primarily through two variables. Respondents are first asked: *"Does [child's] natural father contribute any money to [child's] maintenance through the Child Maintenance and Enforcement Commission (previously known as the Child Support Agency) or another formal or legal agreement? 1 Yes, regular payments, 2 Yes, irregular payments, 3 No".*

Respondents are additionally asked: *"And (apart from any maintenance through the Child Maintenance and Enforcement Commission) does he contribute any other money to [child's] maintenance? 1 Yes, regular payments, 2 Yes, irregular payments, 3 No".*

Both of these variables were recoded as follows: 1 'no', 2 'yes irregular payments' and 3 'yes regular payments' so that being in a higher category equated to greater levels of financial support.

There are a number of limitations to the use of these variables as measures of financial support which must be borne in mind. Firstly, details are self-reported by the child's mother, the views of the non-resident father are not sought. Some evidence suggests that the accounts provided by mothers and non-resident fathers regarding the provision of financial support can diverge quite considerably (Braver et al. 1991). Mothers may tend to report only formal monetary payments whilst fathers may tend to report all financial support whether formal or informal (Marryat et al. 2009). Consequently these measures may not be wholly accurate and may underestimate the actual numbers of non-resident fathers who are providing some form of financial assistance to their children. However, one US study comparing administrative data of child support payments with both mothers' and fathers' reports did find that whilst mothers underreported levels of support and fathers over reported support, mothers' reports were closer to the administrative data than fathers' (Schaeffer et al. 1991).

A second limitation of these measures is that they are limited to financial contributions towards the child's maintenance only. Non-resident fathers may provide materially for their children in other ways, for example they may pay for them to attend activities or cover childcare costs. In addition non-resident fathers may assist mothers with household bills, they may purchase items for the house or may offer practical help with household maintenance. Such activities can potentially improve children's material and economic circumstances and may be indicative of significant non-resident father involvement. Importantly, and

potentially of value in this area, GUS does collect details of how often the non-resident father purchases toys, books or equipment for the child other than for special occasions which serves to capture the frequency of in-kind support provided by non-resident fathers beyond simple direct monetary contributions. Respondents were asked *"How often does [child's] natural father buy toys, clothes or equipment for [child] apart from on special occasions like birthdays?"* Response categories were as follows: 1 'everyday', 2 '5-6 times a week', 3 '3-4 times a week', 4 'once or twice a week', 5 'less often but at least once a month', 6 'less often than once a month' and 7 'never'. For the purposes of the current study the response categories were reverse coded so that being in a higher category was indicative of higher levels of in-kind support.

A final limitation of the measures of financial support is that no information is collected regarding the amount of child support which is certainly an important aspect of non-resident father involvement. Ultimately however, whilst the available measures are not without their limitations they nonetheless provide sufficient detail so as to enable consideration of financial support in development of a latent construct of non-resident father involvement.

Frequency of contact

GUS collects a range of information regarding frequency of contact between non-resident fathers and their children. In the first instance a measure of direct contact is collected with respondents asked to specify how often currently, the child usually sees his natural father. Respondents are asked: *"How often does [child] usually see his natural father at the moment?"* Seven response categories are provided as follows: 1 'everyday', 2 '5-6' times a week, 3 '3-4 times a week', 4 'once or twice a week', 5 'less often but at least once a month', 6 'less often than once a month' and 7 'never'. In the second instance, respondents are similarly asked how often the child has indirect contact with his natural father. Respondents are asked: *"How often does [child] have contact with his natural father by telephone, text message, email or letters?"* The same seven response categories are again offered: 1 'everyday', 2 '5-6' times a week, 3 '3-4 times a week', 4 'once or twice a week', 5 'less often but at least once a month', 6 'less often than once a month' and 7 'never'. For the purposes of the current study response categories for both variables were reverse coded so that higher categories are indicative of more frequent contact. The distinction between direct and indirect contact is a potentially valuable feature of the GUS data. As noted, many previous studies of non-resident fatherhood have captured only frequency of face-to-face contact but other forms

of contact may be equally important. For example, where non-resident fathers live some distance from their children they may enjoy little face-to-face contact. It would be wrong to assume that such fathers had no relationship with their children as they may engage in frequent indirect contact and enjoy a close relationship despite little direct contact. The biggest drawback of these measures is that they capture only frequency of contact and provide no information on duration of time spent together. This is likely to be an important aspect of contact. Non-resident fathers may see their children 5-6 times a week but only for very short periods of time whereas others may see their children on a far less frequent basis but for longer periods. Higher levels of frequency of contact do not necessarily equate to greater levels of actual time spent together, nor to the quality of the time spent together. This could have implications for actual levels of non-resident father involvement and for the nature of any association between involvement and child well-being. This shortcoming however is shared by many other studies of non-resident fatherhood and does not detract from the suitability or value of the available measures to explore the importance of frequency of contact as an aspect of non-resident father involvement and its relationship with child well-being.

The father-child relationship

The nature and quality of the father-child relationship has been identified as an important aspect of non-resident father involvement. There is no single variable in GUS which seeks to capture the relationship between non-resident fathers and their children. Relationships are of course complex and would be extremely difficult to attempt to capture through a single or indeed multiple indicators. Studies of close relationships have indicated that there are a number of important dimensions in such relationships including frequency of contact, length of the relationship, mutual dependence, affection and support engagement in a range of activities (Rossi and Rossi, 1990; Silverstein and Bengston, 1997).

The first available measure is that of the father's perceived interest in the child. Respondents are asked: *"How much interest would you say [child's] natural father shows in him?"*

The response categories are as follows: 1 'very interested', 2 'somewhat interested', 3 'not very interested' or 4 'not at all interested'. Response categories were reverse coded so that higher categories are indicative of greater paternal interest. Whilst the mother's perception of the father's interest in the child may of course not accord with the views of the father or

indeed the child, it nonetheless provides a valuable insight into the father-child relationship. If mothers perceive fathers to be not at all interested in the child then it perhaps unlikely that the father-child relationship would be one of a close emotional bond particularly if this is coupled with very low levels of both direct and indirect contact. Alternatively, fathers who are perceived as being very interested in their children are perhaps more likely to enjoy a close father-child relationship. In addition to potentially not being reflective of the views of the father and / or child, it is important to be aware that the mother's response to this question could be influenced by the quality of the relationship she herself has with the child's father. Despite these limitations this measure does give an indication of the likely quality and degree of closeness in the father-child relationship.

There are two other measures which offer some insight into the nature and quality of the father-child relationship. Firstly, respondents are asked: "*Can you tell me how often, if at all, does [child's] natural father has [child] to stay overnight?"* Secondly respondents are asked: *"Can you tell me how often, if at all, does [child's] natural father take [child] on outings or daytrips?"* For both variables, the following seven response categories are provided: 1 'everyday', 2 '5-6 times a week', 3 '3-4 times a week', 4 'once or twice a week', 5 'less often but at least once a month', 6 'less often than once a month' and 7 'never'. Response categories were reverse coded so that higher categories were indicative of greater non-resident father involvement. These measures may tap into the nature and quality of the father-child relationship by offering insights beyond simple frequency of contact to what actually happens during contact. It has been suggested that the relationship between non-resident fathers and their children can become peer-like and one of friendship rather than parenting characterised by time spent in recreational pursuits (Amato, 1987; Furstenberg et al. 1983). Amato and Gilbreth suggest that many non-resident fathers in fact feel the constraints of contact with their children only allows for them to maintain a 'superficial' relationship with their children (1999: 569). In these circumstances it is perhaps more difficult for a close parental relationship to develop. Consequently, it could be argued that where all or most of the father-child contact time is spent going on outings or trips there will be weaker emotional bonds and ties. Conversely, where fathers have children to stay overnight with some degree of regularity, this may represent a greater willingness to engage more fully with the paternal role and could therefore provide a more solid basis for the development of a close relationship. However, it is important to note, that a lack of overnight stays may not indicate

a father's unwillingness to engage with the paternal role but a mother's reluctance to be apart from the child overnight. This may be particularly pertinent in children's very early years. Additionally, it must be noted that simply because a father has the child to stay overnight does not necessarily lead to direct engagement in childcare duties. He could have a partner or parent who assists with the child and actually fulfils most of the childcare duties. The available measures are not in-depth enough to allow us to draw firm conclusions regarding the closeness of the father-child relationship but they nonetheless offer some insight into the nature of the father-child relationship.

Clearly, the measures employed as indicative of the father-child relationship are not without their limitations. Perhaps the greatest of these is that all information is provided by the child's mother with no account from the non-resident father. In assessments of the father-child relationship the views of the father and indeed the child are of fundamental importance. The latter are also not ascertained by GUS, however given the very young age of the children concerned this is perhaps less of a concern for the current study. Such limitations are by no means unique to the GUS dataset but are common to much survey data in this field. Secondly, the study of relationships does not easily lend itself to quantitative research and is perhaps more amenable to qualitative enquiry. In addition to the inherent difficulties of studying close relationships using quantitative data, secondary data analysis brings with it additional challenges as of course the data have not been collected to fulfil the particular aims and objectives of the current study. Despite the difficulties in capturing the nature and quality of the father-child relationship using GUS, the available measures nonetheless allowed measures indicative of the father-child relationship to be included in the development of the latent construct of non-resident father involvement.

The inter-parental relationship

Finally, the inter-parental relationship is an important aspect of non-resident father involvement. Whilst survey data is not ideally placed to study the nature and quality of relationships, sweep four of GUS features one measure providing an insight into the inter-parental relationship. GUS questions the resident mother as to the quality of her relationship with the child's father. Respondents are asked: *"How would you describe your relationship with[child's] natural father?"* The response categories are as follows: 1 'very good', 2 'fairly good', 3 'neither good nor bad', 4 'fairly bad' or 5 'very bad'. For the purposes of this analysis the measure was reverse coded so that being in a higher category equates to a better

relationship. Whilst this appears to be only a basic measure of the inter-parental relationship it is nonetheless informative of the general relationship quality. Amato and Gilbreth (1999) suggest that the key aspects of the inter-parental relationship which studies ought to consider are that of support / co-operative parenting and conflict. Whilst this measure does not provide a direct insight into the levels of support and conflict in the inter-parental relationship it is possible to deduce some perception. Levels of support, co-operation and conflict are fundamental aspects of the relationship between mothers and non-resident fathers and in describing their relationship it is likely or at least possible that mothers gave consideration to these issues. It might be expected that a relationship categorised as 'very' or 'fairly good' would be characterised by reasonably low levels of conflict and some level of support. It seems unlikely that a respondent would class the inter-parental relationship as very or fairly good if it is characterised by high levels of conflict and little or no support or co-operation. Similarly, it seems reasonable to suppose that a relationship categorised as fairly or very bad is more likely to be characterised by relatively high levels of conflict and lower levels of support and co-operation.

Of course, these measures capture respondent's subjective perceptions and their expectations of the inter-parental relationship will most likely vary. What one respondent views as a very good relationship may be viewed in a poorer light by another. In-depth exploration of what respondents feel constitutes a 'good' or 'bad' relationship cannot be undertaken using the available data. However, this does not detract from the usefulness of this measure it is simply an issue inherent in much quantitative research that must be borne in mind. A final limitation to be borne in mind is that as with most of the GUS data, reports are provided solely by the child's mother whose views may or may not accord with those of the non-resident father.

The descriptive statistics for the indicators of non-resident father involvement are presented in table 4.11 below.

Table 4.11: Descriptive statistics for indicators of non-resident father involvement

Measure	Count		Percentage (%)	
	Unweighted	Weighted	Unweighted	Weighted
Non-resident father interest in child				
o Not at all interested	8	9	2.2	2.0
o Not very interested	48	61	13.3	13.8
o Somewhat interested	113	137	31.1	30.9
o Very interested	194	236	53.4	53.3
Frequency of direct contact				
o Never	3	3	0.8	0.8
o Less than once a month	35	39	9.6	8.7
o At least once a month	66	77	18.2	17.3
o Once or twice a week	142	174	39.1	39.3
o 3-4 times a week	50	62	13.8	13.9
o 5-6 times a week	13	17	3.6	3.8
o Everyday	54	71	14.9	16.1
Frequency of indirect contact				
o Never	124	157	34.2	35.6
o Less than once a month	23	25	6.3	5.7
o At least once a month	26	30	7.2	6.8
o Once or twice a week	71	80	19.6	18.1
o 3-4 times a week	33	39	9.1	8.8
o 5-6 times a week	19	24	5.2	5.4
o Everyday	67	87	18.5	19.6
Frequency of overnight stays				
o Never	139	171	38.3	38.7
o Less than once a month	36	39	9.9	8.8
o At least once a month	67	81	18.5	18.4
o Once or twice a week	103	130	28.4	29.5
o 3-4 times a week	15	17	4.1	3.9
o 5-6 times a week	1	1	0.3	0.2
o Everyday	2	2	0.6	0.5
Frequency of outings				
o Never	77	95	21.4	21.7
o Less than once a month	42	52	11.7	11.9
o At least once a month	98	118	27.3	27.0
o Once or twice a week	125	149	34.8	34.2
o 3-4 times a week	12	16	3.3	3.7
o 5-6 times a week	3	4	0.8	0.8
o Everyday	2	3	0.6	0.7
Frequency non-resident father buys toys etc.				
o Never	123	151	34.5	34.5
o Less than once a month	75	85	21.0	19.4
o At least once a month	95	120	26.6	27.4
o Once or twice a week	56	69	15.7	15.9
o 3-4 times a week	4	6	1.1	1.3
o 5-6 times a week	1	1	0.3	0.3
o Everyday	3	5	0.8	1.1

Formal financial contributions				
o No	238	291	65.9	66.0
o Yes, irregular	10	12	2.8	2.6
o Yes, regular	113	138	31.3	31.3
Informal financial contributions				
o No	222	276	61.3	62.4
o Yes, irregular	40	49	11.0	11.1
o Yes, regular	100	117	27.6	26.5
Relationship between mother and non-resident father				
o Very bad	36	44	9.9	9.8
o Fairly bad	26	29	7.2	6.6
o Neither bad nor good	109	132	30.0	29.8
o Fairly good	123	151	33.9	34.1
o Very good	69	87	19.0	19.7

Source: GUS sweep 4
Note: Where data are weighted, sweep 4 cross-sectional weight is applied.

4.5.3 Non-resident father household

The focus of this study is child well-being in non-resident father households and as such household composition is the key explanatory variable. As noted, for the purposes of this study the term non-resident father household refers to a household in which the child's natural father is absent. It is important to note that this information is obtained through reports from the child's mother and may not always be wholly accurate, either intentionally or unintentionally so. Whilst interesting and perhaps important, this issue could not be addressed by the current project and we must therefore rely on respondent reports.

Non-resident father households are of course not a homogenous group. The non-resident fatherhood and wider family structure literature indicates that child well-being and the circumstances characterising non-resident father households typically differ across lone mother and re-partnered mother households. Consequently, the study distinguishes between these two types of non-resident father households. Information regarding the residency of the child's natural father and further details regarding the household composition such as whether the child's mother is living with a partner are captured at each sweep. For the analyses conducted in chapters five and six, a household composition variable was derived consisting of the following three categories: lone mother non-resident father household, re-partnered mother non-resident father household and two natural parent household using the sweep 5 data. For the purposes of chapter seven, the same variable indicative of household composition was derived using the sweep four data.

It is important to note that the measure of household composition potentially masks a considerable amount of variation in family forms. For example, it does not distinguish between households according to marital status nor take into account the stability of household composition, two factors which may be potentially associated with child well-being. The current research did not consider marital status nor adopt a longitudinal measure of household composition for a number of reasons. Firstly, as household composition is the key explanatory variable of the current study, it was important that the various sub-groups of family forms were large enough to support analyses. Had the research further divided household composition according to marital status and the stability of family form, the resultant sub-groups would have been too small to support analyses. Secondly, further division of household composition would likely have rendered the key explanatory variable of the study overly complex and encumbered the clear presentation and dissemination of findings. Moreover, the focus of the current study is non-resident father households and not marital status or family stability. However, in terms of the latter, considerable evidence indicates stability in family form to be an important confounding variable when considering the relationship between child well-being and non-resident fatherhood and, as will be subsequently detailed, analyses therefore control for whether the household has experienced a transition in family form over sweeps 1-5 of the study.

Table 4.12: Descriptive statistics for household type at sweep five

Household type at sweep five				
	Count		Percentage (%)	
	Weighted	Unweighted	Weighted	Unweighted
Two natural parent	2754	3092	77.7	82.3
Lone mother	669	570	18.9	15.2
Re-partnered Mother	122	93	3.4	2.5

Source: GUS sweep 5
Note: Where data are weighted, sweep 5 longitudinal weight is applied.

4.5.4 Mediating variables

The literature review highlighted a range of factors which potentially serve to mediate the relationship between non-resident fatherhood and child well-being including household economic circumstances, maternal mental health and parenting behaviours. Chapter six considers the role of these factors as mediators of the relationship between living in a non-resident father household and child well-being whilst chapter seven considers their mediating role in the relationship between non-resident father involvement and child well-being.

Consideration will now be given to the selected indicators of each of the selected potential mediators.

Household economic circumstances

Household economic circumstances are captured by a measure of equivalised household annual income. Whilst GUS contains a number of measures of household income, the measure of equivalised income is arguably the most useful. Clearly the household income necessary to achieve a certain standard of living will vary according to household composition and size. Equivalisation of reported household income effectively adjusts for these characteristics meaning income can be compared across households of differing sizes and composition. A key problem posed by this measure, as is generally the case with income data, is that there is the possibility that measures are not wholly accurate. Respondents may feel uncomfortable answering questions relating to income and may therefore refuse to answer or indeed fabricate an answer which they think will be viewed more favourably. Questions regarding income are not included in the self-completion element of the survey which may have elicited more honest answers and there may therefore be concerns regarding the reliability of the income data collected. The sweep 5 continuous measure of equivalised household income is used in the current study.

Maternal mental health

Maternal mental health is captured at sweep 5 using the mental health component score of the Medical Outcomes Study 12-Item Short Form (SF12(MCS)). The SF12 is an abbreviated version of the SF36 instrument tailored for use in large-scale population studies and features in the self-completion element of GUS. It is a self-reported generic measure of health-related quality of life and comprises both a physical component score (PCS) and a mental health component score (MCS). Respondents are asked a series of questions regarding the limitations posed by their physical and mental health in their day to day to lives. The constituent items of the SF12 are presented in table 4.13. Full details of the specific questions asked can be viewed in appendix B to the thesis. The GUS dataset contains the results for individual items in addition to computed total scores for both the PCS and MCS. The total MCS score is employed as a continuous measure in analyses. The SF12(MCS) does not have a threshold score but a higher score is indicative of a *lesser* impact of mental health problems on the respondent's day to day life.

The key limitation of this measure is that is based upon mother's self-reports of their own mental health. Due to the subjective nature of the measure, it is therefore possible that mothers with equivalent mental health status may perceive their status differently leading to differential reporting (Bradshaw et al. 2010: 24). However despite this concern, evaluations have found the SF12(MCS) to be an effective tool for the detection of depressive disorders (Gill et al. 2007; Vilagut et al. 2013) and it is a widely used instrument featuring in a number of population studies including the Scottish Health Survey and the National Survey of NHS patients.

Table 4.13: Constituent variables of SF12

Item 1	How is respondent's health in general
Item 2	Respondent's health limits moderate activities
Item 3	Respondent's health limits climbing stairs
Item 4	Respondent's health limited accomplishments in past 4 weeks
Item 5	Respondent's health limited regular activities in past 4 weeks
Item 6	Respondent's mental health limited accomplishments in past 4 weeks
Item 7	Respondent's mental health limited quality of accomplishments in past 4 weeks
Item 8	Respondent's physical pain limited normal work in past 4 weeks
Item 9	Time respondent felt calm in past 4 weeks
Item 10	Time respondent felt energetic in past 4 weeks
Item 11	Time respondent felt down in past 4 weeks
Item 12	Time respondent's health interfered socially in past 4 weeks

Source: GUS sweep 5

Parenting behaviours

Parenting behaviours are captured by three variables measuring several aspects of parenting style namely; conflict in the mother-child relationship, levels of household chaos and levels of parental supervision.

Levels of mother-child conflict

Levels of conflict in the mother-child relationship were measured at sweep 5 using seven items from the Pianta Child-Parent Relationship Scale (Pianta 1992). The full scale has 30 items and looks at three dimensions of the parent-child relationship, namely warmth, conflict and dependency. The 15 items included in the sweep 5 GUS questionnaire are a subset of the full scale that were also used in the Millennium Cohort Study (MCS2; 2004/05) and which relate to warmth and conflict. Only those items relating to conflict, presented in table 4.14, are used in the current research. Each item was scored as follows: 1 'definitely does not

apply', 2 'not really', 3 'neutral', 4 'applies sometimes', 5 'definitely applies' and 6 'can't say'. For the purposes of this research 'can't say' responses were coded as missing. A total score was computed with higher scores reflecting higher levels of conflict. Full details of the questions can be found in appendix B to the thesis.

Table 4.14: Constituent variables of Pianta Conflict Scale

Item 1	[Child's name] and I always seem to be struggling with each other
Item 2	[Child's name] easily becomes angry at me
Item 3	[Child's name] remains angry or is resistant after being disciplined
Item 4	Dealing with [Child's name] drains my energy
Item 5	When [Child's name] wakes up in a bad mood, I know we're in for a long and difficult day
Item 6	[Child's name]'s feelings towards me can be unpredictable or can change suddenly
Item 7	[Child's name] is sneaky or manipulative with me

Source: GUS sweep 5

Levels of household chaos

Levels of household chaos were measured at sweep 5 using an abbreviated version of the Confusion, Hubbub, and Order scale (CHAOS) (Coldwell et al. 2006). This scale seeks to measure household disorganisation as characterised by levels of noise, crowding, 'comings and goings' in the household and a lack of routine. Mothers were questioned as to their agreement or disagreement with the four items presented in table 4.15. Answers were coded on a 5-point scale from 1 strongly agree to 5 strongly disagree. Items one and two were reverse coded and a total score was computed with higher scores being indicative of greater levels of household chaos. Full details of the questions can be found in appendix B to the thesis.

Table 4.15: Constituent variables of Confusion, Hubbub and Order scale

Item 1	It's really disorganised in our home
Item 2	You can't hear yourself think in our home
Item 3	The atmosphere in our home is calm
Item 4	First thing in the day, we have a regular routine at home

Source: GUS sweep 5

Levels of parental supervision

Levels of parental supervision were measured at sweep four using an abbreviated version of the Parent Supervision Attributes Profile (PSAPQ) questionnaire (Morrongiello and Corbett

2006). The PSAPQ was developed as a tool to assess risk of injury due to inadequate parental supervision with the full questionnaire comprising twenty-nine measures tapping in to issues of protectiveness, supervision beliefs, tolerance for children's risk taking and level of belief in fate as the key determinant of children's safety. The abbreviated questionnaire used in GUS included three measures from the supervision sub-scale and three measures from the protectiveness sub-scale. The GUS survey team note these three measures to have been selected on the basis that they capture more general attitudes to supervision and protectiveness and are less directed towards capturing the specific risk of physical injury (Bradshaw et al. 2009: 25).

Respondents were questioned as to their agreement with six statements presented in table 4.16, regarding protectiveness and supervision whilst the child is playing outdoors. Answers were coded on a 5-point scale from 1 'strongly agree' to 5 'strongly disagree'. Item one was reverse coded and a total score computed with higher scores indicative of higher levels of supervision. Full details of the questions can be found in appendix B to the thesis.

Table 4.16: Constituent variables of Parent Supervision Attributes Profile questionnaire

Item 1	I can trust my child to play by him/herself without constant supervision
Item 2	I stay close enough to my child so that I can get to him/her quickly
Item 3	I think of all the dangerous things that could happen
Item 4	I make sure I know where my child is and what he/she is doing
Item 5	I keep my child from playing rough games or doing things where ^he might get hurt
Item 6	I feel very protective of my child

Source: GUS sweep 4

Limitations of parenting behaviour measures

The three measures of parenting behaviours share a number of limitations. Firstly, all measures are based on maternal reports. As such perceptions are entirely subjective and may be influenced by a range of factors such as maternal mental health, age, culture and socio-economic status which could lead to differential reporting of similar behaviours. Secondly issues of social desirability could potentially pose concerns for the accuracy and reliability of responses. Parenting behaviours are undoubtedly a sensitive subject and it is possible that respondents may give answers which they feel portray them in a more positive light as mothers. It is worth noting that the Pianta scale is included in the self-completion element of the questionnaire which may help minimise concerns of social desirability for this measure. More broadly, the selected measures of parenting behaviour provide information on particular

aspects of behaviours and do not provide a comprehensive account of parenting behaviours. For example, measures capturing the types of activities mothers partake in with their children are not included. GUS collects a wealth of data on parenting behaviours and it would have been interesting and valuable to use a greater number of these measures. However, given the complexity of the analyses undertaken it was decided to focus upon selected key parenting behaviours identified in the literature review as potentially important mediators of the relationship between non-resident fatherhood and child well-being. These limitations do not however detract from the usefulness of the measures in exploring the mediating role of parenting behaviours but are simply caveats to be borne in mind when considering findings.

The descriptive statistics for the mediating variables for the samples used for analyses in chapters five and six are presented in tables 4.17 and 4.18 below.

Table 4.17: Descriptive statistics for mediating variables for chapter five analyses

Two natural parent and non-resident father households								
	Count		Mean		Std.Dev.		Min	Max
Measure	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted		
Equivalised household income	3334	3536	22857.04	24608.07	12418.28	12431.25	1286.80	68965.50
Maternal mental health	3515	3730	50.11	50.50	9.66	9.27	5.89	68.90
Mother-child conflict	3513	3728	16.04	15.88	5.79	5.75	6	38
Household chaos	3545	3755	8.94	8.84	2.342	2.30	4	19
Parental supervision	3544	3662	13.24	13.40	3.15	3.18	2	25

Source: GUS sweeps 1-5
Note: Where data are weighted, sweep 5 longitudinal weight is applied.

Table 4.18: Descriptive statistics for mediating variables for chapter six analyses

Non-resident father households where contact occurs								
	Count		Mean		Std.Dev.		Min	Max
Measure	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted		
Equivalised household income	459	367	14038.29	14956.79	9287.14	9988.16	1831.30	60919.00
Maternal mental health	480	382	47.32	47.68	11.23	11.06	15.49	63.77
Mother-child conflict	478	381	17.05	16.83	5.98	5.97	8	33
Household chaos	487	386	9.09	8.99	2.47	2.47	4	17
Parental supervision	486	385	12.49	12.57	3.01	3.07	6	24

Source: GUS sweeps 1-5
Note: Where data are weighted, sweep 5 longitudinal weight is applied.

4.5.5 Control variables

Existing research identifies a wide range of factors which may confound the effects of non-resident fatherhood on both child well-being and the selected mediating variables. Consequently, in order to help isolate the influence of non-resident fatherhood from other confounding factors a range of background controls were included in the analyses conducted in chapters five and six. The descriptive statistics for the control variables for the samples used for analyses in chapters five and six are presented in tables 4.19 and 4.20 at the end of this section.

Controls for child well-being

Each of the domains of child well-being included a range of control variables. Firstly in terms of child characteristics, analyses controlled for child sex in the form of a binary variable coded 0 for 'males' and 1 for 'females' and the child's age in months at the time of interview.

Secondly, in terms of maternal characteristics, analyses control for maternal education, captured by a series of dummy variables, 'degree or equivalent' (reference), 'vocational qualification below degree', 'Higher Grade or equivalent', 'Standard Grade or equivalent', 'no qualifications'; maternal age at the birth of the child captured by a set of dummy variables, 'under 20' (reference), '20-29', '30-39', '40 and over'; parity, a binary variable coded 0 for 'subsequent birth' and 1 for 'first birth'; and maternal ethnicity, a binary variable coded 0 for 'non-white' and 1 for 'white' (this was not included in chapter six analyses). It is important to note that in terms of maternal ethnicity the derived variable was included in analyses in chapter five on the basis of its routine inclusion in existing studies of non-resident fatherhood. On reflection however, given the lack of variation in the sample across this variable, it would have been a more considered decision not to include this variable in analyses. A more appropriate measure to consider may have been the language spoken at home as this variable would likely have had exhibited a greater level of variation in the Scottish context than a binary variable indicating ethnicity.

Finally, as noted, the non-resident fatherhood and wider family structure literature has highlighted the potential significance of transitions in family structure for child well-being. Of course, non-resident fatherhood need not arise as the result of a transition in family form, particularly in an early years context where many children may have never resided with their natural father. Consequently analyses sought to account for this potentially confounding

influence by controlling for whether or not children experienced a transition to non-resident fatherhood between birth and age five. Using the variable indicative of paternal presence or absence from the household from each of the five sweeps, a binary variable was created coded 0 for 'no transition experienced' and 1 for 'transition experienced'.

Controls for mediating variables

A range of controls were also included for each of the mediating variables. Both household income and maternal mental health include controls for maternal education, maternal age at birth of the child, maternal ethnicity, parity and transition in family form whilst maternal mental health additionally controls for the child's sex Finally each of the three parenting behaviours includes controls for maternal education, maternal age at birth of the child, maternal ethnicity (this was not included in chapter six analyses), parity, the child's sex, transition in family form, household income and maternal mental health.

Table 4.19: Descriptive statistics for control variables for chapter five analyses

Two natural parent and non-resident father households								
	Count				Percentage (%)			
Measure	Weighted		Unweighted		Weighted		Unweighted	
Maternal education								
Degree or equivalent	992		1220		28.1		32.6	
Vocational qualification	1400		1488		39.6		39.7	
below degree								
Higher Grade or equivalent	255		276		7.2		7.4	
Standard Grade or equivalent	580		521		16.4		13.9	
Other								
No qualifications	8		8		0.2		0.2	
	303		231		8.6		6.2	
Maternal age at birth of study child								
Under 20	270		174		7.6		4.6	
20-29	1451		1374		40.9		36.6	
30-39	1713		2069		48.3		55.1	
40+	111		138		3.1		3.7	
Maternal ethnicity								
White	3415		3651		96.4		97.3	
Non-white	126		100		3.6		2.7	
Parity								
First born	1790		1832		50.5		48.8	
Subsequent birth	1755		1923		49.5		51.2	
Transition experienced	465		384		13.1		10.8	
No transition experienced	3080		3169		86.9		89.2	
Child sex								
Female	1718		1839		48.5		49.0	
Male	1827		1916		51.5		51.0	
	Count		Mean		Std.Dev		Min	Max
	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted		
Child age	3545	3755	58.15	58.16	0.45	0.45	57	60

Source: GUS sweeps 1-5 Note: Where data are weighted, sweep 5 longitudinal weight is applied

Table 4.20: Descriptive statistics for control variables for chapter six analyses

Non-resident father households where contact occurs								
	Count				Percentage (%)			
Measure	Weighted		Unweighted		Weighted		Unweighted	
Maternal education								
Degree or equivalent	59		61		12.0		15.8	
Vocational qualification below degree	201		168		41.3		43.5	
Higher Grade or equivalent	23		20		4.7		5.2	
Standard Grade or equivalent	126		87		26.0		22.5	
Other	2		3		0.3		0.8	
No qualifications	77		47		15.7		12.2	
Maternal age at birth of study child								
Under 20	93		49		19.0		12.7	
20-29	262		201		53.7		52.1	
30-39	125		125		25.6		32.4	
40+	8		11		1.7		2.8	
Parity								
First born	274		196		56.2		50.8	
Subsequent birth	213		190		43.8		49.2	
Transition experienced	195		166		40.1		45.5	
No transition experienced	292		199		59.1		52.8	
Child sex								
Female	227		182		46.5		47.2	
Male	260		204		53.5		52.8	
	Count		Mean		Std.Dev		Min	Max
Child age	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted		
	487	386	58.20	58.20	0.481	0.479	57	60

Source: GUS sweeps 1-5 Note: Where data are weighted, sweep 5 longitudinal weight is applied

4.5.6 Correlates of contact and non-resident father involvement

Chapter eight of the thesis explores correlates of contact and non-resident father involvement. The literature review indicated the maintenance of contact and levels of non-resident father involvement to be influenced by a wide range of issues, classified by Cooksey and Craig (1998) into three distinct categories; demographic and background characteristics, situational factors and attitudinal positions. As noted, due to a lack of available data it was not possible to examine all potentially important correlates of non-resident father involvement. Where possible, those issues identified as key in the literature have been considered in addition to the inclusion of factors which may be particularly pertinent in the context of early years non-resident fatherhood. The analyses explore a wide range of characteristics and circumstances, presented in table 4.21, which are categorised as follows: child characteristics and background circumstances, socio-demographic characteristics and situational factors.

Table 4.21: Correlates of contact / involvement

Measure	Category of correlate	Sweep collected
Child sex	Child characteristics	Sweep 1
Child age	Child characteristics	Sweep 4
Pregnancy jointly planned	Background circumstances	Sweep 1
Paternal feelings about pregnancy	Background circumstances	Sweep 1
Paternal attendance at antenatal classes	Background circumstances	Sweep 1
Parents ever married	Background circumstances	Sweeps 1-4
Father previously resident	Background circumstances	Sweeps 1-4
Household income	Socio-demographic characteristics	Sweep 4
Maternal employment	Socio-demographic characteristics	Sweep 4
Maternal relationship status	Situational factors	Sweep 4
Siblings in household	Situational factors	Sweep 4
Geographical distance between father and child	Situational factors	Sweep 4

Source: GUS sweeps 1-4

Child characteristics and background circumstances

In terms of child characteristics, the analyses explore sex and age (see section 4.5.5 for details of these variables). In terms of background circumstances, the analyses explore a number of issues which are of particular interest in the context of early years non-resident fatherhood. In the first instance, consideration is given to whether the pregnancy was jointly planned. At

sweep one of the study mothers were asked the following question: *"Some pregnancies are planned and others are a surprise. Which of these best describes your pregnancy?"* The following response categories were provided: 1 'it was planned by me and my partner', 2 'it was planned by me but not really by my partner', 3 'it wasn't planned but I/we didn't do anything to prevent it happening' and 4 'it wasn't planned at all'. A binary variable was created indicating whether the pregnancy was jointly planned, coded 0 if the pregnancy was not planned by both partners and coded 1 if the pregnancy was planned by both partners. Whether or not the pregnancy was jointly planned may be tapping into early commitment to the paternal role and therefore seemed an important issue to consider in the context of early years non-resident fatherhood. Of course this variable may not be wholly reliable in capturing early commitment to the paternal role. An unplanned baby is by no means synonymous with an unwanted baby and many fathers who may not have actively planned the pregnancy may have nonetheless received the news with happiness and welcomed the transition to fatherhood.

A second background issue considered is paternal feelings on first learning of the pregnancy. At sweep one, mother were questioned as to how the father felt about the prospect of having the baby when he first knew of the pregnancy. The specific question asked of respondents was: *"What about your partner [study child's] father? How did he feel about the prospect of having this baby when he first knew you were pregnant?"* The following response categories were provided: 1 'very happy', 2 'fairly happy', 3 'neither happy nor unhappy', 4 'fairly unhappy', 5 'very unhappy' and 6 'did not know about the pregnancy'. For the purposes of analysis, the small number of 'did not know about the pregnancy' responses were coded as missing and a set of dummy variables indicative of the father's feelings was created; 'very or fairly unhappy' (reference), 'neither happy nor unhappy' and 'very or fairly happy'. Whilst this measure is perhaps a better indicator of early commitment to the paternal role than whether the pregnancy was jointly planned, it is certainly not without its limitations; perhaps most notably that it captures maternal perception of the father's feelings. Clearly, maternal perception may not necessarily accord with the father's thoughts and feelings. Even where it does, a further important limitation of this measure is that the father's feelings may have changed over the course of the pregnancy and following the birth of the child. This measure attempts to capture paternal feelings on first learning of the pregnancy, feelings which may be influenced by a wide range of factors such as whether the pregnancy planned, whether the

couple were in a stable, committed relationship or whether the couple were financially secure. Where a father was initially unhappy on learning of the pregnancy due to for example, the baby being unplanned, he may have subsequently felt happiness at the prospect of fatherhood given time to digest the news. As such this measure may not truly reflect early commitment to the paternal role.

A third background issue considered is paternal attendance at antenatal classes. Mothers were asked at sweep one: *"Did [child's] father attend any classes or groups?"* The following response categories were provided: 1 'yes, went to most or all classes', 2 'yes, went to some classes' and 3 'no, did not attend any classes'. A binary variable indicative of the father's attendance at classes was created, coded 0 for 'did not attend classes' and 1 for 'attended classes'. It is possible, that attendance at antenatal classes may also be tapping into early commitment to the paternal role, with those fathers attending classes being more inclined towards the role of hands-on involved father. Of course, this is not necessarily the case as attendance at antenatal classes is likely to be influenced not only by attitudinal positions towards the paternal role but by a range of practical considerations too. For example, some fathers-to-be may be highly committed to the paternal role but unable to attend classes due to employment constraints.

Finally, two further instances of background information highlighted by the literature as important to the maintenance of contact and levels of involvement are also considered. Firstly, information collected across sweeps 1-4 capturing the relationship status of the mother and the child's natural father was used to compute a binary variable indicative of parental marital status coded 0 for 'previously married' and 1 for 'never married'. Secondly, information from across sweeps 1-4 was used to create a binary variable indicating whether the father has been non-resident from birth, coded 0 for 'previously resident' and 1 for 'never resident'.

Socio-demographic characteristics

In terms of socio-demographic characteristics, analyses consider maternal education, maternal age at the birth of the child and maternal ethnicity (see section 5.4.5 for details of these variables). The economic circumstances of the household are captured by reference to household income and maternal employment. Household income is captured by equivalised

household income whilst maternal employment is captured by a binary variable coded 0 for 'not in employment' and 1 for 'in employment'.

Whilst the analyses consider a range of socio-demographic characteristics, they suffer from one notable limitation; no consideration is given to paternal characteristics. Whilst the socio-demographic characteristics of non-resident fathers are undoubtedly of interest to studies exploring correlates of contact and involvement, GUS unfortunately does not collect this information. As such the analyses are certainly limited in considering only maternal characteristics. Whilst acknowledging this weakness, there is evidence to suggest that maternal socio-demographic characteristics are a good proxy for those of fathers (Amato et al. 2009; Cheadle et al. 2010). Moreover, maternal socio-demographic characteristics are themselves of interest for mothers are almost certainly influential in the maintenance of contact and levels of involvement. As such it is undoubtedly of interest to explore how maternal socio-demographic characteristics may be associated with contact and involvement.

Situational factors

The final category of variables considered is those termed by Cooksey and Craig (1998) as situational factors. Three such measures are included in analyses. Firstly, the current relationship status of the mother is captured by a binary indicator variable coded 0 for 'lone mother' and 1 for 're-partnered mother'. Secondly, the presence of siblings in the household is captured by a binary indicator variable coded 0 for 'no siblings in household' and 1 for 'siblings in household'. The premise for including this variable is that there may be a greater likelihood of contact occurring and higher levels of involvement where there are siblings who share the same non-resident father. Of course, it cannot be ascertained from GUS whether the siblings in the household are full or half siblings and as such this variable must be interpreted with caution.

Finally, analysis of levels of involvement also includes a measure of the geographical distance between the non-resident father and child. Respondents were asked the following question: *"Thinking about travelling by car, roughly how many minutes away does [child's] natural father live from him/her?"* The following response categories were provided: '10 minutes or less', '11 to 30 minutes', '31 to 59 minutes', 'one to two hours' or 'more than two hours'. This variable was recoded into a series of dummy variables, '30 minutes or less', 'between 31 to 59 minutes' and 'one hour or more' (reference category). It is unfortunate that

this information was not collected where there was no current contact between non-resident fathers and children thus preventing its inclusion in the model predicting the likelihood of contact occurring. It is quite possible that the geographical distance between father and child may be an important predictor not only of levels of involvement where fathers are in contact but of whether contact occurs at all.

Having considered each of the potential correlates included in analyses it is clear that they by no means comprise a comprehensive account of all characteristics and circumstances which may be associated with the maintenance of contact and levels of involvement. Moreover, the selected measures undoubtedly have their weaknesses. However, the selected correlates nonetheless encompass a wide range of circumstances and characteristics allowing for an interesting exploration of non-resident father contact and involvement in children's early years.

The descriptive statistics for the selected correlates of contact are presented in table 4.22 and 4.23 below.

Table 4.22: Descriptive statistics for categorical correlates of contact

	All non-resident father households				Non-resident father households where contact occurs			
	Count		Percentage (%)		Count		Percentage (%)	
	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted
Child sex								
Male	431	325	53.6	52.7	278	214	52.8	51.8
Female	373	292	46.4	47.3	249	199	47.2	48.2
Father never resident with child	574	407	71.4	66.0	344	243	65.2	58.8
Father previously resident with child	230	210	28.6	34.0	183	170	34.8	41.2
Parents never married	668	483	83.1	78.3	417	302	79.2	73.1
Parents previously married	136	134	16.9	21.7	109	111	20.8	26.9
Whether pregnancy was jointly planned								
Yes	216	183	26.9	29.7	174	149	67.0	36.2
No	587	433	73.1	70.3	352	263	33.0	63.8
Father's feelings about the pregnancy								
Very or fairly unhappy	154	114	20.5	19.8	80	60	15.6	15.0
Neither happy nor unhappy	146	99	19.4	17.2	104	69	20.4	17.2
Fairly or very happy	450	364	60.0	63.1	328	272	64.1	67.8
Father's attendance at antenatal classes								
Attended no classes	673	508	84.3	83.1	430	331	81.9	80.5
Attended some or all classes	125	103	15.7	16.9	95	80	18.1	19.5
Maternal age at birth of child								
Under 20	187	107	23.3	17.3	107	61	20.3	14.8
20-29	414	314	51.5	50.9	278	215	52.8	52.1
30-39	190	183	23.7	29.7	134	128	25.4	31.0
40+	13	13	1.6	2.1	8	9	1.5	2.2
Maternal education								
Degree level or equivalent	80	81	10.0	13.1	60	62	11.3	15.0

Vocational qualification below degree level	330	272	41.4	44.1	207	174	39.3	42.1
Higher Grade	50	41	6.2	6.6	30	25	5.6	6.1
Standard Grade	203	137	25.2	22.2	144	98	27.4	23.7
No qualifications	136	83	16.9	13.5	81	51	15.4	12.3
Maternal ethnicity								
Non-white	7	5	0.9	0.8	3	3	0.6	0.7
White	797	612	99.1	99.2	524	410	99.4	99.3
Maternal employment								
Not in employment	339	273	49.7	44.2	247	173	46.9	41.9
In employment	404	344	50.3	55.8	280	240	53.1	58.1
Family status								
Lone mother	695	534	86.5	86.5	480	375	91.2	90.8
Re-partnered mother	109	83	13.5	13.5	47	38	8.8	9.2
Other siblings in household								
No	382	285	47.5	46.2	242	182	45.9	44.1
Yes	422	332	52.5	53.8	285	231	54.1	55.9
Travel time between father and child								
One hour or more					57	49	10.9	12.0
31-59 minutes					44	35	8.5	8.6
30 minutes or less					422	325	80.1	79.5

Source: GUS sweeps 1-4

Note: Where data are weighted, sweep 4 longitudinal weight is applied.

Table 4.23: Descriptive statistics for continuous correlates of contact

	All non-resident father households						Non-resident father households where contact occurs					
	Count		Mean		Std. Dev.		Count		Mean		Std. Dev.	
	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted
Child age	804	617	46.21	46.21	0.51	0.51	527	413	46.24	46.23	0.52	0.52
Equivalised household income	804	617	12599.20	13584.18	9688.63	10327.30	527	413	12883.16	13974.08	10152.20	10906.03

Source: GUS sweeps 1-4
Note: Where data are weighted, sweep 4 longitudinal weight is applied.

4.6 Issues of selection and endogeneity

Two issues of key importance for the analyses in this thesis are those of selection and endogeneity. Firstly, selection issues are a key challenge in this area of research. It is possible that there are characteristics, both observed and unobserved, of mothers and fathers across two natural parent households, lone mother households and re-partnered mother households which distinguish these households, and that these characteristics may themselves be associated with child well-being. As such it is possible that observed associations attributed to living in a particular type of household may actually be explained by other characteristics of the household rather than as an effect of family structure per se. The analyses in this thesis attempt to address selection concerns by including a wide range of controls. However, this does not wholly alleviate these concerns as there are likely to be unobserved differences across the family types that the analyses do not control for. This must be borne in mind when considering the research findings.

Secondly, endogeneity is also an important consideration for the analyses. Endogeneity is concerned with situations where there is a correlation between an independent variable in a model and the error term in the model. There are a number of possible sources of endogeneity including omitted variables, simultaneity and self-selection. Endogeneity is a particularly important consideration for the analyses conducted in chapter seven exploring the correlates of contact and involvement. In these analyses, each of the correlates of contact is entered in the statistical models as if they were exogenous variables. That is to say, each correlate is treated as a variable whose value is entirely causally independent from other variables in the system. This is problematic for particular variables considered in chapter seven. For instance, the geographical distance between non-resident fathers and their children is of course extremely unlikely to be an exogenous variable. Rather, it is likely that those fathers who live a greater distance from their children are those with less tendency to be 'involved' fathers. It is therefore important to be aware of potential issues of endogeneity and to take great care not to imply causal relationships when interpreting analyses, for example, that increased geographical distance leads to lower levels of contact and involvement. Attention now turns to the methods of statistical analysis used in the study.

4.7 Statistical analysis

The main method of quantitative analysis used in the study is structural equation modelling (SEM). Chapter six features a full SEM model whilst chapters five and seven use a special case of SEM known as a multiple indicator multiple causes (MIMIC) model. A MIMIC model is essentially a confirmatory factor analysis with covariates. The aim is to test the impact of a covariate on a measurement model. In comparison to a MIMIC model, a full SEM model explores relationships between latent constructs (Muthen and Muthen, 1998-2007). Both MIMIC models and SEM models are evaluated using the same criteria set out below. All SEM analyses were conducted using Mplus version 7.2. Chapter seven also employs logistic regression modelling which was conducted using the complex sample module of IBM SPSS Statistics version 21.

4.7.1 Structural equation modelling

SEM is a multivariate technique consisting of two primary components: a measurement model and a structural model. The measurement model consists of a factor analysis in which observed variables are explained by a smaller number of latent constructs and the structural model provides estimates of the relationships between the variables (both latent and observed) in the model (Bollen, 1989). Before describing in-depth the process of SEM, consideration is first given to its key strengths in the context of the current study.

Key strengths of SEM in the context of this research

SEM has a number of strengths commending its use in the context of the current study. Firstly, it permits exploration of multiple outcomes within one model as opposed to having to estimate a series of separate regression models for each outcome of interest (Kline, 2005) as is typically the case in existing studies of non-resident fatherhood. In addition, it allows measurement of latent variables that might more accurately capture underlying constructs compared with single variable observations and is therefore an apt technique through which to explore unobservable concepts. This is particularly suited for the current research which seeks to move beyond the narrow, restrictive conceptualisation of child well-being and non-resident father involvement typically adopted in existing studies to conceptualise and measures these terms as multi-dimensional latent constructs.

A further key advantage of SEM is that it allows for a complete and simultaneous test of all associations between variables. This is particularly useful given the potential complexity and interconnectedness of the variables under study and allows greater depth of exploration and understanding regarding the relationships between non-resident fatherhood, economic circumstances, parental resources and child well-being. SEM enables the total effect of the explanatory variables to be separated into direct and indirect effects (Bollen 1989). This is a major strength of using SEM to explore the association between non-resident fatherhood and child well-being within the employed theoretical framework. It allows for estimation of the total effect of non-resident fatherhood on each of the selected child outcomes but also estimation of the indirect effects of non-resident fatherhood transmitted through the mediating variables. As noted, existing studies of non-resident fatherhood and child well-being have typically employed a series of regression models to examine associations between particular aspects of non-resident fatherhood and specific child outcomes. The use of SEM however, allows multiple associations to be explored within one model.

Ultimately, the use of SEM is a major strength of the current research. Whilst SEM is now commonly used in social science research, to my knowledge it has not been used in the field of non-resident father studies in the manner in which is it is employed in the current research. Firstly, I am unaware of any existing studies of non-resident fatherhood which have used SEM to create a multi-dimensional latent construct of child well-being and explore both the direct effects of living in a non-resident father household and the indirect effects transmitted through a range of potentially mediating pathways. Similarly, I am unaware of any existing studies using SEM to explore the direct and indirect associations between the multi-dimensional latent constructs of non-resident father involvement and child well-being. Finally to my knowledge, there are no existing studies using SEM to examine the potential correlates of a multi-dimensional latent construct of non-resident father involvement. The use of SEM in the current research therefore marks a valuable and important methodological contribution to the field of non-resident father studies. Moreover, the use of SEM marks not only a methodological contribution, but its associated strengths serve to further knowledge and understanding of the substantive associations underlying non-resident fatherhood and child well-being thus further contributing to development of the field of non-resident father studies.

The modelling process

SEM is most often conceived as a two-step modelling process. The first step consists of validation of the measurement model, whilst the second step consists of fitting the structural equation model (Joreskog and Sorbom (1993). Although it has been suggested that the first step is not strictly necessary, a poorly fitting full model is easier to evaluate if the measurement model has been validated beforehand as the misfit can automatically be attributed to the structural portion of the model. Consequently this study follows the two-step approach.

Step 1: Validation of measurement model

The first step is to test the measurement models using factor analysis which specifies the relations of the indicator variables to their underlying latent variables. The goal of factor analysis is to identify the underlying concepts of a large number of observed variables thereby reducing the number of observed variables to a smaller number of latent variables (Schumacker and Lomax, 2010). Factor analysis can be exploratory or confirmatory in nature. Whilst the goal of both of these types of factor analysis is to replace a large number of observed variables with a smaller number of latent variables, the two techniques exhibit fundamental differences.

Exploratory factor analysis (EFA) aims to ascertain the number of latent variables underlying a set of observed variables. It aims to find the minimum number of latent factors which adequately accounts for the correlations among the observed variables and which observed variables are adequate measures of the latent variables. It is exploratory in nature as it extracts latent variables from the data without prior specification of the number of latent variables or specification of how the observed variables load onto the specific latent variables. EFA is generally applied where the latent structure is unknown, for example, when developing a new measurement instrument (Thomson, 2004).

Conversely, confirmatory factor analysis (CFA) requires a strong theoretical and / or empirical basis. In CFA both the number of latent variables and indicator variables per latent variable are selected a priori based on theory and /or existing empirical research (Brown, 2006). The hypothesized model is assessed by how well it reproduces the sample covariance matrix of the measured variables. CFA is used in chapters five and six to assess hypothesized measurement models of child well-being and non-resident father involvement.

Step 2: Fitting the Structural Equation Model

Following formulation of an appropriate measurement model, the second step in the modelling process is to fit the structural part of the model. SEM is undertaken to assess the fit of the measurement model to the data in the structural model. SEM analyses provide estimations of the path coefficients of the model and goodness-of-fit indices between the measurement model and the data in the structural model. According to Schumacker and Lomax (2010) the key aim of structural equation modelling in the context of testing a hypothesized model is to find a statistically significant model which makes substantive sense within the context of theory and / or existing empirical research. Schumacker and Lomax (2010) propose three criteria by which to evaluate the adequacy of a hypothesized model namely, assessment of goodness-of-fit indices, assessment of the significance of model parameters and assessment of the direction of model parameters. Each of these criteria will now be considered in turn.

Assessment of Goodness-of-fit Indices

Model fit indices provide an assessment of how well the hypothesized model explains the data. Consideration must be given to a number of indices when evaluating model fit. This study uses five commonly used indices to evaluate model fit namely, model Chi-Square, Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA) and Weighted Root Mean Square Residual (WRMR). Each of these will now be briefly considered.

Model Chi-Square (x2): The Chi-Square value is the traditional evaluative measure of overall model fit. It assesses the 'magnitude of discrepancy between the sample and fitted covariances matrices' (Hu and Bentler, 1999: 2). It is sometimes regarded as a 'badness of fit' measure (Kline, 2005) as good model fit is indicated by a statistically insignificant result at a 0.05 threshold (Barrett, 2007). Whilst the Chi-Square statistic remains a popular measure of model fit, its use is burdened by a number of limitations. Firstly, it is essentially a test of statistical significance and is therefore sensitive to sample size. Consequently, its value is most always statistically significant when samples are large (Bentler and Bonnet, 1980; Jöreskog and Sörbom, 1993). Conversely, where sample sizes are small it has been found to lack power and as such may fail to differentiate between good and poor fitting models (Kenny and McCoach, 2003). In addition, the Chi-Square test assumes multivariate

normality. When data exhibits acute deviations from normality, even in circumstances of a correctly specified model, the Chi-Square value may indicate a poorly fitting model thus leading to model rejection. Ultimately, the Chi-Square statistic is arguably a poor indicator of model fit in circumstances of non-normal data and large sample sizes. In any event, a statistically significant Chi-Square value should not, on its own, lead to model rejection. Consequently, whilst Chi-Square values are reported in analyses, given the non-normal nature of the data coupled with the reasonably large sample size, its limitations must be borne firmly in mind. Certainly, a statistically significant Chi-Square value will not be deemed sufficient reason, in and of itself, to reject a hypothesized model.

Root Mean Square Error of Approximation (RMSEA): The RMSEA fit statistic indicates goodness of fit for the model with unknown, but optimally chosen parameter estimates to the population covariance matrix (Byrne, 1998). It is sensitive to the number of model parameters and favours parsimony in model selection. Traditionally, RMSEA values in the range of 0.05 to 0.10 were considered indicative of fair model fit with values greater than 0.10 indicative of poor model fit (MacCallum et al 1996). It was later considered that values of 0.08 to 0.10 were indicative of mediocre model fit with values below 0.08 indicative of good model fit (MacCallum et al. 1996). In recent times however, cut-off values have become more stringent. Hu and Bentler (1999) have suggested a cut-off value of close to 0.06 whilst Steiger, (2007) has suggested an upper limit of 0.07 (Steiger, 2007). In addition to fit statistic estimate the RMSEA also provides a confidence interval for its value thereby allowing model fit to be more accurately tested. For good model fit, the lower limit should be close to 0 and the upper limit less than 0.08.

Incremental fit indices: Model fit is also judged by reference to two incremental fit indices, the Tucker-Lewis Index and the Comparative Fit Index. Incremental fit indices measure the relative improvement in fit of the hypothesized model compared with a baseline model, generally the null model, which provides that all variables are uncorrelated (McDonald and Ho, 2002). The CFI is one of the fit statistics least affected by sample size (Fan et al. 1999), performing well even with small samples (Tabachnick and Fidell, 2007). The CFI statistic is a normed fit index taking a value between 0 and 1 with values closer to 1 indicative of good model fit. Whilst a threshold of 0.90 has been suggested as indicative of acceptable model fit

(Marsh et al. 2004), Hu and Bentler (1999) recommend a more stringent cut-off value of ≥0.95.

The TLI (Tucker and Lewis 1973) is a non-normed index and as such can take values out with the range 0 to 1. The TLI value can indicate poor model fit in the presence of other fit statistics indicating good model fit (Bentler, 1990; Kline, 2005; Tabachnick and Fidell, 2007) as it penalises overly complex models where parameters contribute only minimally to model fit. Whilst values as low as 0.80 have been suggested as an acceptable cut-off rate, it is generally recommended that the threshold of acceptable model fit be set at 0.90, with Bentler and Hu (1999) suggesting a more stringent cut-off of ≥ 0.95.

Weighted Root Mean Square Residual (WRMR): The WRMR is a reasonably recent model fit index designed for models containing categorical data (Muthen and Muthen, 1998-2007; Yu, 2002). It measures the weighted average difference between the sample and estimated population variances and covariances (Yu, 2002: 32). WRMR remains an experimental statistic but values of <1 have been suggested of indicative of acceptable model fit and ≤0.95 of good model fit (Yu, 2002).

Significance of parameter estimates

The second criterion for consideration is the statistical significance of parameter estimates for the paths / factor loadings in the model. A parameter estimate must be statistically significant before its substantive meaning can be provisionally accepted within a well-fitting model. The level for significance is generally set at 0.05 (Schumacker and Lomax , 2010) and is indeed the level set in this study.

Size of parameter estimates

The size of parameter estimates must also be examined. In the measurement model, for standardised factor loadings, the conventionally adopted minimum cut-off value is 0.30 (Kim and Mueller, 1978; Kline, 1993; Brown, 2006). Tabachnick and Fidell (2007) set forth a range of cut-off values for standardised factor loadings as follows: 0.32 = poor; 0.45 = fair; 0.55 = good; 0.63 = very good; 0.71 = excellent. The conventional minimum cut-off value of 0.30 is adopted in this research although the strength of particular factor loadings is interpreted and discussed according to the values set forth by Tabachnick and Fidell (2007).

When examining the path estimates in the full SEM and MIMIC models, the size of parameter estimates will be discussed in terms of effect sizes. A standardized path coefficient is also called the effect size in SEM and essentially measures the strength of the relationship between variables. The cut-off values defined by Cohen (1992) will be adopted here and are as follows: 0.10 = small effect; 0.30 = medium effect; 0.50 = large effect.

Direction of parameter estimates

Finally consideration must be given to the direction of the parameter estimates, i.e. whether the coefficient is positive or negative. This is of particular importance as it must make substantive sense within the context of the theory and or / existing empirical evidence informing the hypothesized model.

Modification indices

Modification indices are a measure of the predicted decrease in chi-square if a particular parameter were to be freed from the model. Consequently, modification indices can be used to improve the value of chi-square and therefore the overall fit of the model. However, as is the case when making any changes to an initial model, changes based on modification indices must be theoretically justified.

Requirements of SEM

SEM requires data to meet distributional assumptions and the use of an adequate sample size. In terms of distributional assumptions, the most common type of model estimation is the maximum likelihood (ML) method which requires multivariate normally distributed variables. This requirement is not met by the current study with many of the outcome variables being categorical in nature. The main alternative to maximum likelihood estimation is weighted least squares estimation (WLS). Whilst WLS estimation is not as efficient as ML, it is suitable for use with categorical data. In addition, as WLS uses only the univariate distributions and bivariate correlations amongst the variables instead of taking into account all of the information in the data as ML does, it is very computationally efficient and therefore suitable for fitting complex models with lots of variables. In Mplus 7, the default estimator for categorical dependent variables is probit regression estimated using the 'Weighted Least Squares - Mean and Variance corrected' (WLSMV) estimator.

In terms of sample size, SEM is generally regarded as a 'large-sample' technique, with the generally accepted minimum sample size being 200 (Kline, 2005). This minimum sample size is exceeded in all SEM analyses conducted in the current study. Larger sample sizes are however preferable, as the accuracy and stability of SEM models has been noted to decline with decreasing sample size and increasing model complexity (Nachtigall et al. 2003: 7). In addition the use of estimation methods alternative to ML also necessitates use of a larger sample size (Muthen and Kaplan, 1992). Whilst sample size does not pose any notable issues of concern for the analysis in chapter five, the analyses conducted in chapters six and seven however focus on smaller sub-samples and it is therefore possible that the models are underpowered to detect statistically significant associations.

Missing data

When running analyses using the WLSMV estimator, Mplus handles missing data in a particular way. Where there are no covariates in the model, as is the case with the measurement models for child well-being and non-resident father involvement, a pairwise present approach is employed i.e. all available observations are used to estimate each correlation (Muthen 1998-2007). When there are covariates in the model, as is the case with the MIMIC models in chapters five and seven and the full SEM in chapter six, the model is estimated conditioned on the covariates. The practical result of this is that cases with data missing on independent variables or on all outcome variables are excluded from analyses (Muthen, 1998-2007). The approach taken by Mplus to the handling of missing data means it helps to maintain maximum sample sizes for analyses.

4.7.2 Binary logistic regression

Binary logistic regression is appropriate when the outcome of interest is a dichotomous variable such as in the current analysis, whether or not a child has contact with his/her non-resident father. It is based on the 'log-likelihood' of an event occurring which is the probability that the observed values of the dependent variable can be predicted from the values of the independent variables. The log-likelihood is calculated using the maximum likelihood estimation method (ML) and varies from zero to minus infinity. ML involves maximising the log-likelihood function, or, how likely it is that observed values of the dependent variable can be estimated from the known values of the independent variables (Agresti, 2002).

Whilst having less stringent assumptions than OLS linear regression, such as not requiring normally distributed variables and not assuming linearity between the independent variables and the dependent variable nor homoscedasticity, logistic regression nonetheless has a number of key assumptions. It requires that observations are independent and that the independent variables are linearly related to the logit of the dependent variable whilst also assuming that independent variables are not linearly related to each other (Menard, 1995).

Logistic regression analyses conducted using the complex sample module of SPSS produce a range of statistical tests which help evaluate how well the model predicts the dependent variable. Consideration will now be given to the interpretation of coefficients in a logistic regression model and assessment of model fit.

Interpreting coefficients

Consistent with the SEM analyses, the level of significance for coefficients in the logistic regression models was set at the typically adopted level of 0.05.

The coefficients in a logistic regression model are the log-odds ratios and are therefore somewhat difficult to interpret. Consequently, for a more intuitive understanding, the coefficients are usually exponentiated to give their impact on the odds as opposed to the logged odds. Odds ratios reported for independent variables in models represent the ratio change in the odds of the increase or decrease in the odds of being in one outcome category as opposed to the other, for each unit of increase in the independent variable. For categorical independent variables, the odds of each category are compared to a reference category. The odds ratio is also a measure of effect size and indicates the relative importance of each independent variable in terms of its effect on the dependent variable and allows for comparison across the independent variables (Menard, 1995).

Classification table

The simplest means to evaluate the appropriateness of a logistic regression model is to assess to what extent the model accurately predicts the dependent variable by examining the classification table. The classification table indicates the correct and incorrect classifications of the dependent variable predicted by the model. One means of assessing model fit is to compare the overall percentage in the full model table to the overall percentage in the null model table (Field, 2000).

Nagelkerke Pseudo R^2

In OLS regression, R^2 is an indicator of the percentage of variance in the dependent variable explained by the independent variables included in the model. Whilst there is no directly equivalent measure in logistic regression, pseudo R^2 measures have been developed which are designed to mimic R^2 for logistic regression models. The most commonly reported of these pseudo R^2 measures is Nagelkerke's R^2. Based on the improved log-likelihood of a model compared to a null model, Nagelkerke's R^2 should not be interpreted as the percentage of variance in the dependent variable explained by the independent variables, but rather as a measure of strength of association, ranging from 0 to 1 (Field, 2000).

Chapter 5: Child well-being in non-resident father households

5.1 Introduction

This chapter explores associations between living in a non-resident father household and child well-being. More specifically, this chapter seeks to ascertain whether child well-being is poorer in non-resident natural father households compared to two natural parent households. Beyond this, it seeks to explain and understand the pathways through which living in a non-resident father household might be associated with child well-being directly or indirectly.

In doing so, this chapter addresses the first and second research questions detailed in chapter two:

Is early child well-being poorer in non-resident natural father households compared to two natural parent households?

To what extent is living in a non-resident father household associated with child well-being, directly through paternal absence per se, and / or indirectly via household economic circumstances and parental resources?

As detailed in the methods chapter, structural equation modelling is used to examine the direct and indirect associations between living in a non-resident father household and child well-being. Confirmatory factor analysis is used to construct a measure of child well-being using the 16 indicators detailed in chapter four. The focal variable used to explore the direct associations is the absence of the child's natural father from the household with two categories of household distinguished, namely lone mother households and re-partnered mother households. The indirect associations to be explored are those transmitted via household income, maternal mental health, household chaos, mother-child conflict and parental supervision. The control variables used for child well-being and each of the potentially mediating variables are detailed in figure 5.3. Details of the focal, mediating and control variables can again be found in chapter four.

5.2 Bivariate statistics

Before conducting a confirmatory factor analysis to develop a construct of child well-being, the bivariate associations between the child well-being indicators and mediating variables by household type will be briefly discussed to consider initial differences across non-resident father and two natural parent households. Consideration is first given to the child well-being indicators. In the first instance, in terms of social, emotional and behavioural difficulties, differences in the mean scores were tested using analysis of variance models (ANOVA). The results in table 5.1 indicate statistically significant differences in the mean SDQ scores across the three household types for each element of the SDQ other than pro-social behaviour. As was expected, children in lone mother households had the highest level of difficulties whilst those in two natural parents had the lowest. Children in re-partnered mother households had a lower level of difficulties than those in lone mother households but a higher level than their contemporaries in two natural parent households.

In the second instance, as regards cognitive development and ability, differences in mean scores were again tested using ANOVA. The results again indicated there to be statistically significant differences in the mean scores of both cognitive assessments across the three household types. Scores were lowest for children in lone mother household and highest for those in two natural parent households. Similar to social, emotional and behavioural well-being, the mean scores for children in re-partnered households fell between those of their contemporaries in lone mother and two natural parent households.

In the third instance, in terms of general health, both the measure of general health and the presence of a long-term illness or disability exhibited statistically significant associations with household type. For general health, the highest levels of reported good health were found in two natural parent households and the lowest levels in lone mother households. Once again, reported levels of good health in re-partnered mother households fell between those in lone mother and two natural parent households. With regard to both the number of accidents and injuries, and the number of health problems experienced in the last 12 months, the results indicate there to be statistically significant differences in the mean values for these variables across the three household types. For both of these variables children in two natural parent households appear to fare best with the lowest number of accidents and injuries and the lowest number of health problems. Children in lone mother households appear to fare worse in terms of the number of accidents and injuries but there was little difference between

lone mother and re-partnered mother households in terms of the number of health problems experienced. Once again, differences in these mean scores were tested using ANOVA.

Finally in terms of material resources, whether the household has continuous access to a vehicle, a garden, and internet access all exhibited statistically significant associations with household type. As expected, once again children in two natural parent households appear to fare best and those in lone parent households the worst with those in re-partnered mother households generally falling between these two groups. In addition, the results revealed statistically significant differences in the mean number of outings in the preceding 12 months across the three household types. Children in two natural parent households had the highest mean value, those in lone mother households the lowest whilst the mean value for those in re-partnered mother households once again fell between the two groups.

Overall, the results support the hypothesis that children in non-resident father households experience poorer well-being than their contemporaries in two natural parent households. Moreover, that the results suggest that the well-being of children in re-partnered households is generally better than their contemporaries in lone mother households but poorer than that in two natural parent households offers preliminary support for the decision to distinguish between these two types of non-resident father household. In considering differences across the household types, it is very important to note the particularly small sample size of non-resident father households in which the mother has re-partnered. This may have had implications for detecting statistically significant associations and differences across the various household types.

Consideration of the mediating variables revealed a similar pattern to that seen across the child well-being indicators. For each of the mediating variables, differences in mean values across household types were tested using ANOVA. The results indicated there to be statistically significant differences in the mean values for each of the mediating variables across the three household types. Once again, two natural parent households fared best as characterised by the highest level of income, the lowest level of maternal mental health difficulties (remembering that in terms of mental health higher scores are indicative of lower levels of difficulties), the highest levels of parental supervision and the lowest levels of both household chaos and mother-child conflict. Lone mother households were characterised by the poorest circumstances across each of the mediating variables whilst re-partnered mother

households once again fared better than lone mother households but worse than two natural parent households. Taken collectively, the results support the hypothesis that non-resident father households are typically characterised by poorer household economic circumstances and parental resources relative to two natural parent households. Moreover, as was the case when considering the indicators of child well-being, that the circumstances of re-partnered mother households are generally better than those in lone mother households whilst remaining poorer than those in two natural parent households is once again supportive of the decision to distinguish non-resident father households in this way. In considering differences across the household types, it is again very important to keep in mind the particularly small sample size of non-resident father households in which the mother has re-partnered.

Table 5.1: Child well-being indicators and mediating variables by household type

Measure	Non-resident father household								
	Lone mother			Re-partnered mother			Two natural parent household		
	N	**%**	**Mean**	**N**	**%**	**Mean**	**N**	**%**	**Mean**
Social, emotional and behavioural development	563		1.51	93		1.26	3069		1.16
Emotional symptoms ***	563		2.10	93		1.97	3070		1.60
Conduct problems ***	561		4.25	92		4.66	3063		3.46
Hyper-activity/inattention ***	563		1.39	93		1.01	3068		0.95
Peer problems ***	561		8.14	93		8.15	3071		8.24
Pro-social behaviour									
Cognitive development and ability									
Picture Similarities***	538		80.96	90		81.97	3019		83.48
Naming Vocabulary ***	539		105.57	90		107.88	3021		110.72
Health									
General health ***									
o Very good	386	67.7		67	72.0		2420	78.3	
o Good	136	23.9		20	21.5		561	18.1	
o Fair	39	6.8		5	5.4		97	3.1	
o Bad	9	1.6		1	1.1		12	0.4	
o Very bad	0	0.0		0	0.0		2	0.1	
Child has a long-term illness or disability**									
o Yes	121	21.2		21	22.6		487	15.8	
o No	449	78.8		72	77.4		2605	84.2	
Number of health problems in last 12 months	570		1.82	93		1.81	3092		1.62
Number of accidents/injuries (sweeps1-4)	570		1.26	93		1.42	3092		0.88
Material resources									
Household has continuous access to a vehicle***									
o Yes	297	72.6		78	83.9		2910	94.2	
o No	272	47.8		15	16.1		179	5.8	
Household has a garden***									
o Yes	499	87.7		82	88.2		2998	97.1	
o No	70	12.3		11	11.8		91	2.9	
Household has internet access***									
o Yes	315	72.6		62	89.9		2170	93.4	
o No	119	21.7		7	10.1		558	6.6	

Household has a handheld games console									
o Yes	340	78.3		61	88.4		1765	76.0	
o No	94	21.7		8	11.6		558	24.0	
Number of types of outings in last 12 months	539		3.20	93		3.31	3031		3.73
Equivalised household income***	547		13780	100		20820	2950		26701
Maternal mental health***	571		46.78	103		50.58	3122		51.16
Mother-child conflict***	570		16.92	105		16.16	3121		15.68
Household chaos**	578		9.18	104		9.15	3140		8.78
Parental supervision***	546		12.77	103		12.73	3077		13.55

Source: GUS sweeps 1-5 Statistical significance:***p<.001 **p<.01 *p<.05
Sweep 5 longitudinal weight and survey weights applied.

5.3 Confirmatory factor analysis of child well-being measurement model:

A confirmatory factor analysis was undertaken to assess the measurement model depicted in figure 5.1. Informed by both theory and existing empirical evidence, child well-being was hypothesized to be a four factor model with the 16 factor indicators presented in table 5.2. The four factors were hypothesized to represent four domains of child well-being namely; social, emotional and behavioural development, cognitive ability and development, general physical health and material resources.

Table 5.2: Indicators of child well-being used in CFA

Measure	Domain of well-being
BAS Picture Similarities	Cognitive development and ability
BAS Naming Vocabulary	Cognitive development and ability
SDQ Emotional symptoms	Social, emotional and behavioural development
SDQ Conduct problems	Social, emotional and behavioural development
SDQ Hyper-activity and inattention	Social, emotional and behavioural development
SDQ Peer problems	Social, emotional and behavioural development
SDQ Pro-social behaviour	Social, emotional and behavioural development
General health	General health
Short-term illness	General health
Long-standing illness or disability	General health
Accidents and injuries	General health
Access to a garden	Material situation
Internet access	Material situation
Continuous use of a vehicle	Material situation
Hand-held games console	Material situation
Outings / trips	Material situation

Source: GUS sweeps 1-5

5.3.1 Initial child well-being measurement model

The initial measurement model depicted in figure 5.1 did not provide an acceptable fit to the data and it was therefore necessary to re-specify the measurement model. The process of re-specification was based on consideration of item content in addition to statistical considerations. Firstly, parameter estimates were examined paying particular attention to the significance, size and direction of estimates before examination of modification indices.

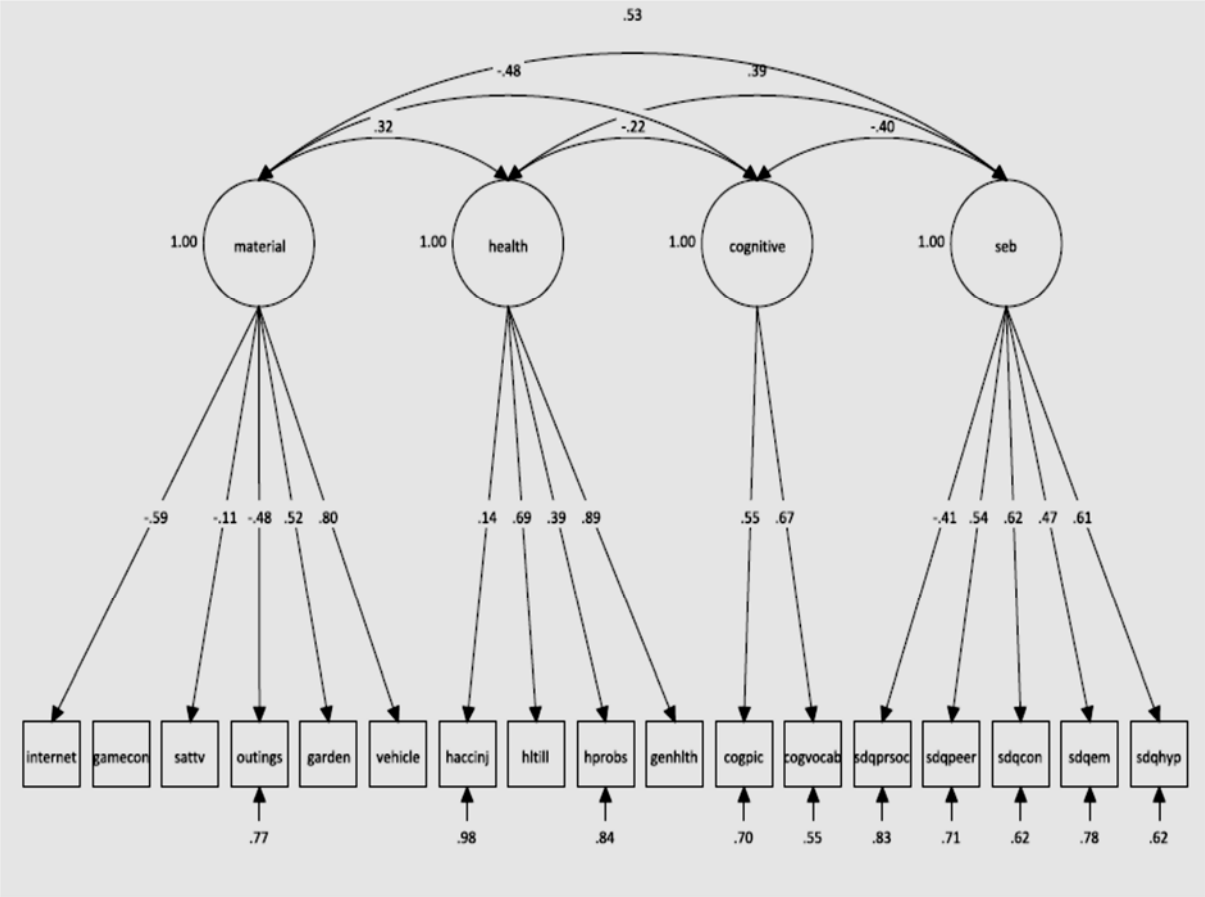
In the first instance, consideration of the parameter estimates revealed that all but two indicators exhibited a statistically significant association with their underlying latent variable. Whether the household possessed a games console and whether the household had satellite / cable TV did not exhibit a statistically significant association with the latent variable material resources. Both of these variables were therefore removed from the model.

In the second instance, all but one standardized factor loadings were above the conventionally adopted minimum cut-off of 0.30 (Kim and Mueller, 1978; Kline, 1993; Brown, 2006). In the domain of health, the variable indicating the number of accidents / injuries in the preceding twelve months had a very low standardized factor loading of 0.144. Although statistically significant, this value was well below the minimum threshold of 0.30 and this item was therefore deleted. Deletion of this item also made theoretical sense too. Upon reflection, it is quite probable that the number of accidents / injuries is not necessarily reflective of the child's health but of other characteristics of the child, the child's home environment or parenting behaviours. For example, a high number of accidents / injuries may be more likely to be a reflection of an accident prone child or lower levels of parental supervision, rather than a child with poor health.

Finally, following consideration of modification indices correlated errors were allowed between the SDQ pro-social behaviour score and the SDQ scores for conduct problems, peer problems and hyper-activity / inattention. Correlated errors for the SDQ conduct problems and hyper-activity / inattention score were also allowed based on high modification indices. The presence of correlated error terms indicates that the covariance in the observed indicators is not only due to the underlying latent construct and random error but also due to some other shared cause in the observed indicators. Allowing for these correlated errors in the re-specified model was theoretically justified. Whilst the SDQ scores for conduct problems, peer problems, hyper-activity / inattention and pro-social behaviour are of course all indicative of social, emotional and behavioural development, they also share a further more specific feature, they are all indicative of development associated with externalising behaviours unlike the emotional symptoms score which is indicative of internalising behaviours. Therefore this unifying trait of externalising behaviours justifies the correlation of errors across these particular SDQ scores.

The initial model presented one additional difficulty; the latent variable social, emotional and behavioural development exhibited a negative residual variance. This is known as a Heywood case and renders all model estimates unreliable. Recoding the SDQ scores into categorical variables resolved this issue. The scores were recoded according to Goodman's classification of scores as 'normal', 'borderline' and 'abnormal' (1997).

Figure 5.1: Initial child well-being measurement model (statistically significant standardised parameter estimates shown)

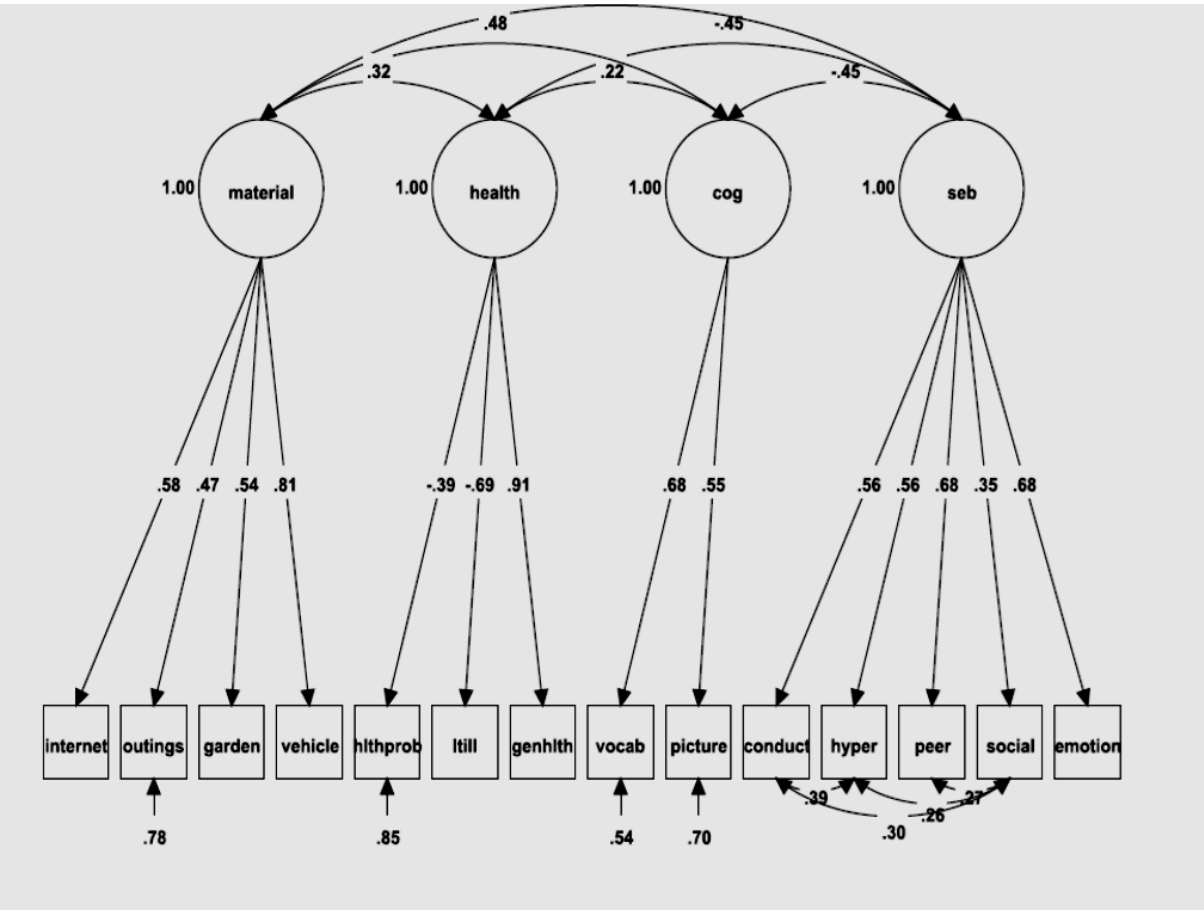


Source: GUS sweeps 1-5 N=3755 CFI=0.917; TLI=0.90; RMSEA=0.04; WRMR=1.932
Sweep 5 longitudinal weight and survey weights applied.

5.3.2 Final child well-being measurement model

The final child well-being measurement model is depicted in figure 5.2. Multiple criteria were once again used to evaluate the measurement model namely, goodness-of-fit indices, significance of parameter estimates, the size of parameter estimates and the direction of parameter estimates.

Figure 5.2: Final child well-being measurement model (statistically significant standardised parameter estimates shown)



Source: GUS sweeps 1-5 N=3755
CFI=0.987; TLI=0.982; RMSEA=0.017; WRMR=0.973
Sweep 5 longitudinal weight and survey weights applied.

Firstly, consideration of goodness-of-fit indices indicated that the re-specified measurement model fits the data very well. Whilst the value of Chi-Square was highly statistically significant and indicative of poor model fit, bearing in mind sample size (n=3755) this value is potentially unreliable and is most certainly, as noted earlier, an unreliable indicator of model fit when considered in isolation. Certainly a model should not be disregarded on the basis of the value of Chi Square alone. Overall the other measures of model fit were indicative of very good fit (CFI=0.987; TLI=0.982; RMSEA 0.017 90% confidence interval of 0.014-0.021 indicating close model fit; WRMR 0.973). Ultimately, overall the goodness-of-fit values are indicative that the final hypothesized measurement model fits the data very well.

Table 5.3 presents the results for the child well-being measurement model. The first column shows the standardized parameter estimates which denote the factor loadings between the

four latent constructs and the observed indicators. The second column displays the standard error of the parameter estimate. The third column presents the value of the parameter estimate divided by its standard error which is a critical ratio. This critical ratio is a test of statistical significance. Comparing the value of this ratio with the conventional statistical significance cut-off points allows the statistical significance of the parameter estimates to be evaluated. Absolute values greater than 1.96 are indicative of statistical significance at the .05 level. Finally, the fourth column presents the R-square values which can be interpreted as the amount of variance in the observed variable accounted for by the latent variable. Consideration of parameter estimates will now be discussed for each of the four latent constructs in turn.

Social, emotional and behavioural development

For the domain of social, emotional and behavioural development, all observed variables were statistically significant indicators of the underlying latent variable. All standardized factor loadings for the latent construct social, emotional and behavioural development are statistically significant at $p<.001$.

In terms of the size of parameter estimates, all standardized factor loadings were above the conventionally adopted minimum cut-off of 0.30 (Kim and Mueller, 1978; Kline, 1993; Brown, 2006). The emotional symptoms and peer problem indicators exhibited the strongest relationship with the underlying latent variable with standardized factor loadings of 0.68. According to the cut-off values suggested by Tabachnick and Fidell (2007) these variables can be classified as very good indicators of the underlying latent construct. The conduct problems and hyper-activity indicators also exhibited a strong relationship with the underlying latent variable with standardised factor loadings of 0.56. These variables can therefore be deemed good indicators of the latent construct social, emotional and behavioural development (Tabachnick and Fidell, 2007). Finally, the standardised factor loading for the pro-social behaviour indicator is rather weak at only 0.35. Consequently, the measure of pro-social behaviour can be regarded as a poor indicator of the underlying latent variable (Tabachnick and Fidell, 2007). However, despite having a low factor loading pro-social behaviour was a statistically significant indicator of the social, emotional and behavioural development latent variable ($p<.001$) and was therefore retained within the measurement model.

Consideration of the direction of parameter estimates indicated that all were in the expected direction. Each of the indicator variables exhibited a positive relationship with the underlying latent construct. In other words, having a 'borderline' or 'abnormal' score on any of the five SDQ scores was associated with greater social, emotional and behavioural difficulties.

Consideration of the R^2 statistic reveals the emotional symptoms and peer problems variables had high R^2 values of 0.47 indicating that the latent construct accounts for 47 per cent of the variation in emotional symptoms and peer problems scores. The conduct problems and hyperactivity variables also exhibited reasonably high values of R^2 at 0.31 indicating that the latent construct accounts for 31 per cent of the variation in scores on both variables. The R^2 value for the pro-social behaviour variable was low at only 0.12 signifying that the latent construct accounts for only 12 per cent of the variation in the pro-social behaviour scores.

To summarise, the latent construct of social, emotional and behavioural development is statistically significantly and positively associated with emotional symptoms, conduct problems, hyper-activity / inattention, peer problems and pro-social behaviour scores. Interpreted substantively, having a 'borderline' or 'abnormal' score on any of these five scores is associated with poorer social, emotional and behavioural development.

Cognitive development and ability

In the domain of cognitive development and ability both observed variables were statistically significant indicators of the underlying latent variable at $p<.001$. Both standardised factor loadings were strong, well above the minimum cut-off of 0.30. The vocabulary assessment exhibited the strongest association at 0.68 with the pictures assessment exhibiting a somewhat weaker association of 0.55. Consequently, the vocabulary assessment can be considered a very good indicator of cognitive development and ability and the pictures assessment a good indicator (Tabachnick and Fidell, 2007).

The direction of both parameter estimates was as expected. Both variables were positively associated with the underlying latent construct. In other words, higher scores on either of the BASII assessments were associated with greater cognitive development and ability.

In terms of R^2 values, the naming vocabulary assessment had the highest R^2 value at 0.46 indicating that the underlying latent construct accounted for approximately 46 per cent of the variation in scores. A lower R^2 value of 0.30 indicated that the latent construct of cognitive

development and ability accounted for approximately 30 per cent of the variation in scores on the picture similarities assessment.

In summary, both BASII assessments are statistically significantly and positively associated with the latent construct of cognitive development and ability. In interpreting this substantively, higher scores on both of the BASII assessments were associated with greater cognitive development and ability.

General health

In the domain of general health, all observed variables were statistically significant indicators of the underlying latent construct at $p<.001$.

The standardized factor loadings for the three indicators were of varying strength although all were above the minimum cut-off value of 0.30. Better maternal reported general health exhibited the strongest association with the underlying latent construct with a standardized factor loading of 0.91.This can therefore be regarded as an excellent indicator variable (Tabachnick and Fidell, 2007). The presence of a long-term illness or disability also had a strong relationship with the latent construct with a standardized factor loading of 0.69 meaning this can be regarded as a very good indicator variable. Finally, the weakest indicator was the number of health problems experienced by the child in the preceding 12 months with a standardised factor loading of 0.39. In accordance with the cut-off values set forth by Tabachnick and Fidell (2007) this variable can be regarded as only a poor indicator of the latent construct of general health. Nonetheless, the measure was a statistically significant indicator of the latent construct with a standardized factor loading above the 0.30 minimum cut-off value. Consequently, the indicator was retained in the model.

The direction of each of the three parameter estimates was as expected. Maternal reported general health had a positive relationship with the latent construct of general health whilst having a long-term illness or disability and the number of health problems experienced in the preceding 12 months unsurprisingly exhibited a negative association with the underlying latent construct.

R^2 values varied across the three measures. Maternal reported general health had a very high R^2 value of 0.82 indicating that the underlying construct accounted for approximately 82 per cent of the variation in this measure. A high R^2 value of 0.48 indicated that the latent

construct of general health accounted for approximately 48 per cent of the variation in the variable indicating whether the child had a long-term illness or disability. Finally, the number of health problems experienced by the child in the last 12 months had a low R^2 value of 0.15 signifying that the underlying latent construct accounted for only approximately 15 per cent of the variation in this measure.

In summary, maternal reported general health was statistically significantly and positively associated with the latent construct general health. Conversely, the presence of a long-term illness or disability and the number of health problems experienced in the last 12 months were statistically significantly and negatively associated with the underlying latent construct. In other words, unsurprisingly, better maternal reported general health was associated with greater general health whilst the presence of a long-term illness or disability and a higher number of health problems in the last 12 months were associated with poorer general health.

Material resources

Finally, in the domain of material resources all observed variables were statistically significant indicators of the underlying latent construct again at $p<.001$.

Standardized factor loadings for each of the four indicators were above the minimum cut-off value of 0.30 but did vary in strength. Whether the household had continuous access to a vehicle was the strongest indicator with a standardised factor loading of 0.81 rendering this measure an excellent indicator of the latent construct material resources. The second strongest indicator was whether the household had internet access with a standardised factor loading of 0.58 thus making this a very good indicator of the underlying latent construct (Tabachnick and Fidell, 2007). Whether the household had access to a garden can be considered a good indicator of material resources with a standardised factor loading of 0.54 (Tabachnick and Fidell, 2007). Finally, the number of different outings the child had experienced in the last 12 months was the weakest indicator with a standardised factor loading of 0.47 and is therefore considered a fair indicator of the underlying latent construct (Tabachnick and Fidell, 2007).

The direction of all parameter estimates was as expected. All indicators exhibited a positive relationship with the underlying latent construct. Having continuous access to a vehicle, having access to a garden and having internet access in the household were associated with

greater material resources. Similarly the greater the number of outings the child had experienced in the last 12 months was also associated with greater material resources.

R^2 values varied across the four measures. Approximately 66 per cent (R^2 value of 0.66) of the variation in the indicator variable whether the household has continuous access to a vehicle could be accounted for by the latent construct of material resources. Whether the household has internet access had the second largest R^2 value at 0.34 indicating that the latent construct accounted for approximately 34 per cent of variation in this measure. The remaining two indicators had values of 0.29 (whether the household had access to a garden) and 0.22 (the number of outings in the past 12 months) signifying that the latent construct of material resources accounted for approximately 29 per cent and 22 per cent respectively of variation in these measures.

To summarise, whether the household had continuous access to a vehicle, access to a garden, internet access and the number of outings experienced by the child in the past 12 months were all statistically significantly and positively associated with the latent construct of material resources. In other words, having a vehicle, a garden, internet access and a experiencing a greater number of outings were all associated with increased material resources.

Table 5.3: Final child well-being measurement model

Domain	Indicator	Standardised parameter estimates	S.E.	Est. / S.E.	R^2
Social, emotional and behavioural development	Emotional symptoms	0.68	0.03	20.77***	0.47
	Conduct problems	0.56	0.03	20.41***	0.31
	Hyperactivity	0.56	0.03	18.20***	0.31
	Peer problems	0.68	0.03	24.39***	0.47
	Pro-social behaviour	0.35	0.05	7.31***	0.12
Cognitive ability and development	BAS II Picture Similarities	0.55	0.02	23.80***	0.30
	BAS II Naming Vocabulary	0.68	0.03	26.54***	0.46
Health	General health	0.91	0.03	30.51***	0.82
	Long-term illness or disability	-0.69	0.03	-24.86***	0.48
	Number of health problems in last 12 months	-0.39	0.02	-20.26***	0.15
Material resources	Household has continuous access to vehicle	0.81	0.03	28.11***	0.66
	Household has a garden	0.54	0.05	12.00***	0.29
	Household has internet access	0.58	0.04	15.03***	0.34
	Number of outings in last 12 months	0.47	0.02	21.99***	0.22

Source: GUS sweeps 1-5 N=3755
Note: Statistical significance ***p<0.001
CFI=0.987; TLI=0.982; RMSEA=0.017; WRMR=0.973
Sweep 5 longitudinal weight and survey weights applied.

Ultimately, the results of the confirmatory factor analysis support the selected indicators as sound measures for their latent domains whilst also providing support to the hypothesized four dimensional structure of child well-being. Consequently the measurement model of child well-being has been adequately validated to proceed with testing the full MIMIC model.

5.4 MIMIC model

Following validation of the child well-being model, a MIMIC model was conducted. Figure 5.3 illustrates the potential associations between non-resident fatherhood, household income, maternal mental health and parenting behaviours tested in the model.

Firstly, it was hypothesized that living in a non-resident father household (be that a lone mother or re-partnered mother household) has a direct negative effect on child well-being. It is important to note however that the specification of direct pathways between living in either a lone mother or re-partnered mother non-resident father household and child well-being may be capturing a number of influences on child well-being and not simply the direct influence

of paternal absence or presence. These direct pathways may also be capturing indirect effects transmitted via other mechanisms not included in the model.

Secondly, it was hypothesized that living in a non-resident father household has an indirect negative effect on child well-being transmitted via the selected mediator variables, household income, maternal mental health and the selected parenting behaviours, namely, levels of parental supervision, levels of household chaos and levels of conflict in the mother-child relationship. Underlying consideration of these indirect effects is the hypothesis that living in a non-resident father household is directly associated with poorer household income, poorer maternal mental health and poorer parenting behaviours.

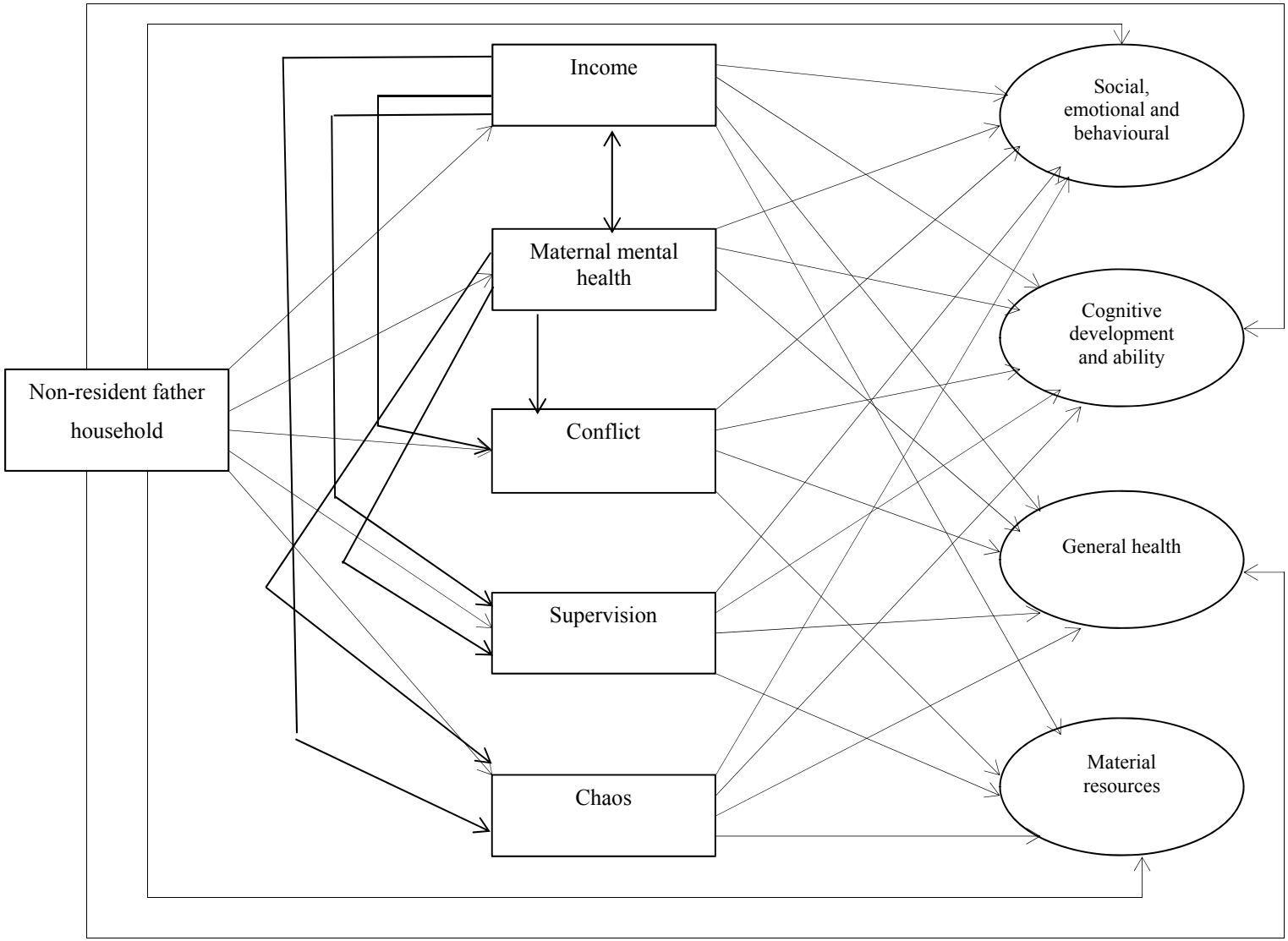
A number of other additional hypotheses were specified regarding the relationships amongst the mediating variables and between the mediators and child well-being. In the first instance it was hypothesized that each of the mediating variables is directly associated with child well-being. More specifically, it was hypothesized that poorer household income, poorer maternal mental health and poorer parenting behaviours are associated with diminished child well-being. In the second instance, it was hypothesized, that household income and maternal mental health are directly associated with parenting behaviours. More precisely, increased household income and better maternal health were expected to be associated with lower levels of household chaos and mother-child conflict and higher levels of parental supervision. Finally, a correlation between maternal mental health and household income was hypothesized. The direction of this relationship was not specified as it seems plausible that either poorer household income could result in poorer maternal mental health or indeed that the former could result in the latter.

Examination of model fit indices provided an overall unsatisfactory picture of model fit. Whilst the value for RMSEA (0.027) was indicative of good model fit and CFI (0.936) indicative of acceptable model fit, the values TLI (0.894) and WRMR (1.356) and a highly statistically significant value for Chi-Square were indicative of poor model fit. Following consideration of modification indices, a number of additional pathways were added to the hypothesized model. Firstly, a high modification index indicated a correlation between levels of household chaos and levels of mother-child conflict. Allowing for such a correlation made substantive sense as it seems quite plausible that there could be an association between levels of household chaos and levels of mother-child conflict.

Secondly, the modification indices highlighted a number of statistically significant direct associations between living in a lone mother household, several of the mediating variables and specific child well-being indicators. This is known as Differential Item Functioning (DIF) and indicates that there are differences in these specific indicators which are attributable to the particular covariate after controlling for the relevant latent factor. For example, the results indicated the existence of direct associations between living in a lone mother household and whether the household has a vehicle and the number of different outings experienced in the preceding twelve months. This suggests that living in a lone mother household is statistically significantly associated with vehicle ownership and the number of outings over and above its association with material resources.

Direct associations were also found between levels of household conflict and peer problems, conduct problems and vehicle ownership; household income and vehicle ownership; levels of household chaos and peer problems and levels of parental supervision and access to a garden. Following inclusion of these direct associations in the model, the model exhibited very good fit to the data. Whilst the value for Chi-Square remained highly statistically significant, overall the other measures of model fit were indicative of good fit (CFI=0.970; TLI=0.949; RMSEA 0.012 90% confidence interval of 0.010-0.015 indicating close model fit; WRMR 0.979).

Figure 5.3: Hypothesized pathways from non-resident fatherhood to child well-being



Note: Child well-being latent variables include controls for child's age and sex, maternal age at birth of child, maternal education, parity, maternal ethnicity, and transition in family form.

Household income and maternal mental health include controls for maternal age at birth of child, maternal education, parity, maternal ethnicity and transition in family form. Maternal mental health additionally controls for child's sex.

Conflict, chaos and supervision include controls for household income, maternal mental health, child's sex, maternal age at birth of child, maternal education, parity, maternal ethnicity and transition in family form.

5.4.1 Paths from non-resident fatherhood to child well-being

As discussed earlier, in efforts to move beyond simple dichotomies of father presence / absence, the decision was taken to treat lone mother households and households in which mothers have re-partnered as distinct categories of non-resident father households. Consideration will first be given to the well-being of children in lone mother households compared to their counterparts in two natural parent households before similarly comparing the well-being of children in re-partnered mother households and two natural parent households.

The results are presented as follows. Firstly, the total effects between living in a lone mother household and child well-being are examined. Secondly, consideration is given to the direct effects between lone motherhood and child well-being. Thirdly, the indirect effects between living in a lone mother household and child well-being transmitted via each of the mediating variables are examined. These effects are then similarly considered in relation to re-partnered mother households.

Before presenting the model results consideration will be given to the calculation of total, direct and indirect effects. For example, the total effect of living in a lone mother household on social, emotional and behavioural difficulties (0.29) is the sum of its direct effect (0.1) and its indirect effect (0.19). The total indirect effect is the sum of all of the specific indirect effects between living in a lone mother household and children's social, emotional and behavioural difficulties. For example, the specific indirect effect transmitted via household income is 0.08. Summing all of the specific indirect effects transmitted via the mediating variables provides the total indirect effect.

It is important to once again stress that the terminology of direct and indirect effects used in SEM should not be taken as referring to causality. As previously discussed, SEM methods cannot, in and of themselves, establish causality. The model specifies the direction of effects hypothesized to exist, for example, living in a lone mother household is hypothesized to have a negative effect on child well-being and evaluation of the model can either lead to rejection of these hypothesized relationships or indeed be supportive of the hypothesized pathways. Support for the hypothesized relationships allows the hypotheses to be provisionally accepted, it does not prove the hypotheses or allow inferences of causality to be drawn.

Table 5.4: Direct, indirect and total effects of living in a lone mother household on child well-being

	Social, emotional and behavioural development		Cognitive development and ability		General health		Material resources	
	Std.Est	St Es/S.E.	Std.Est	StEs /S.E.	Std.Est	StEs./S.E.	Std.Est.	St Es./S.E.
Total	0.29	3.47**	-0.19	-2.94*	-0.28	-3.69***	-0.86	-7.61***
Total direct	0.10	1.44	-0.05	-0.64	-0.13	-1.7	-0.59	-5.09***
Total indirect	0.19	4.04***	-0.14	-5.56***	-0.15	-5.14***	-0.28	-9.32***
Via Income	0.08	4.42***	-0.1	-4.48***	-0.09	-4.09***	-0.25	-9.9***
Via maternal mental health	0.04	4.29***	-0.01	-1.31	-0.04	-3.62***	-0.01	-1.42
Via chaos	-0.06	-4.31***	0.01	1.48	0.01	1.88	0.03	3.19**
Via conflict	-0.01	-0.38	0.00	0.38	0.00	0.39	0.00	0.38
Via parental supervision	0.01	1.89	-0.01	-1.76	-0.01	-1.65	-0.01	-1.5
Via income, chaos	0.03	6.63***	-0.00	-1.56	-0.01	-2.3*	-0.02	-4.48***
Via income, conflict	0.02	2.91*	-0.01	-2.53*	-0.00	-1.95*	-0.00	-1.82
Via income, supervision	0.00	2.32*	-0.01	-2.29*	-0.01	-2.43*	-0.00	-1.81
Via maternal mental health, chaos	0.03	5.32***	-0.00	-1.51	-0.01	-2.11*	-0.01	-3.86***
Via maternal mental health, conflict	0.06	5.49***	-0.01	-4.19***	-0.01	-2.47*	-0.01	-2.53*
Via maternal mental health, supervision	0.000	-0.307	0.000	0.303	0.000	0.310	0.000	0.298

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
CFI=0.970; TLI=0.949; RMSEA 0.012; WRMR 0.979
Estimates include control variables. Sweep 5 longitudinal weight and survey weights applied.

5.4.2 Total effects between living in a lone mother household and child well-being

Before considering the specific direct and indirect pathways between living in a lone mother household and child well-being, consideration will be given to the total effects, that is to say the sum of all the direct and indirect effects. It was hypothesized that children in lone mother households would have on average, lower well-being than their contemporaries in two natural parent households. The results presented in table 5.4 displaying standardized estimates for total, effects between lone motherhood and child well-being support this hypothesis. It can be seen that the total effect between living in a lone mother household and child well-being was greatest in the domain of material resources where the effect size could be regarded as large (-0.86) in addition to being statistically significant, meaning that on average children in lone mother households have poorer material resources than children in two natural parent households. In the domain of social, emotional and behavioural development the total effect was of medium strength (0.29) and again statistically significant indicating that children in

lone mother households experienced on average, a higher level of social, emotional and behavioural difficulties than their contemporaries in two natural parent households. The total effect was less in the domain of general health but was still statistically significant with a medium effect size (-0.28), meaning that children in lone mother households experienced poorer health than children in two natural parent households. Finally, the total effect was smallest (-0.19) although still statistically significant, for cognitive development and ability indicating that children in lone mother households are on average, not as cognitively advanced as children from two natural parent households. So, overall it can be seen that child well-being is indeed statistically significantly poorer in non-resident father lone mother households relative to two natural parent households across each of the four domains of well-being. The key issue now is to consider what might explain this finding. Consideration of the direct and indirect effects between living in a lone mother household and child well-being offers insight into the potential pathways through which the associations may operate. Is the observed negative association the result of the absence of the child's natural father from the household per se, or it is largely explained by the mediating variables?

5.4.3 Direct pathways between lone motherhood and child well-being

In terms of direct effects, it was hypothesized that there would be a direct pathway between living in a lone mother household and poorer child well-being. Results were largely unsupportive of this hypothesis. Consideration of the results presented in table 5.4 detailing the direct paths from living in a lone mother household to each of the four domains of child well-being reveals that children living in lone mother households are statistically significantly more likely to be more deprived in terms of material resources than children living in two natural parent households. However, in terms of social, emotional and behavioural difficulties, general health and cognitive ability, no statistically significant differences were found between the two household types.

Consideration of effect sizes reveals small direct effects between living in a lone mother household and child well-being in the domains of social, emotional and behavioural difficulties and general health, 0.10 and -0.13 respectively and very small direct effects as regards cognitive development and ability at -0.05, all of which were as noted, statistically insignificant. In contrast, in the domain of material resources, the direct effect was large at -0.59. That the direct effect is considerably larger in the domain of material resources is

unsurprising as it is well established that lone mother households experience on average, greater economic and material deprivation than two parent households.

It is additionally useful to consider the relative importance of these direct effects in the context of the total effects, remembering that only the first of these direct effects is statistically significant. The largest contribution of the direct effect of lone motherhood was in the domain of material resources, accounting for over two thirds (68 per cent) of the total effects. Accounting for almost half (47 per cent) of the total effects, the second largest contribution of the direct effect of lone motherhood was in the domain of general health. The contribution of the direct effect of lone motherhood was less again in the domain of social, emotional and behavioural difficulties constituting 34 per cent of the total effects. Finally, in the domain of cognitive development and ability, the direct pathway from lone motherhood accounted for only one quarter of the total effects.

Overall, the results suggest that living in a lone mother household is statistically significantly and directly associated with poorer material situation but not cognitive development and ability, social, emotional and behavioural development or general health. In other words, all being equal across the range of control variables, the absence of the child's natural father from the household is potentially inherently detrimental to child well-being in terms of material resources, but not in terms of children's social, emotional and behavioural development, cognitive development and ability and general health. Of course, as noted previously, the direct pathway between living in a lone mother household and material well-being may be capturing other mediating mechanisms not considered in the current model.

5.4.4 Indirect pathways between lone motherhood and child well-being

In addition to the direct pathways from living in a non-resident father lone mother household to child well-being, it was hypothesized that living in a lone mother household would indirectly influence child well-being via multiple mediating mechanisms, namely, household income, maternal mental health and parenting behaviours.

To first consider the total indirect effects transmitted via the mediator variables, that is to say the sum of all the indirect effects in the model. Results presented in table 5.4 reveal there to be a statistically significant positive total indirect effects for social, emotional and behavioural difficulties and statistically significant negative total indirect effects for cognitive

development and ability, general health and material resources. In other words, living in a lone mother household was statistically significantly associated with poorer child well-being across each of the four domains indirectly via the selected mediating variables. Whilst all associations were highly statistically significant, consideration of effects sizes reveals the total indirect effects to be greatest for material resources (-0.28) followed by social, emotional and behavioural difficulties (0.19). In terms of cognitive development and ability and general health, total indirect effects were small at -0.14 and -0.15 respectively.

From the earlier consideration of direct effects it can already be deduced that indirect effects have an important role to play in the relationship between lone motherhood and child well-being. The total contribution of indirect effects is greatest for cognitive development and ability, accounting for three-quarters of the total effect. Indirect effects are of also of considerable importance in the domain of social, emotional and behavioural difficulties accounting for two-thirds of the total effect. For general health, indirect effects contribute slightly more than half (53 per cent) of the total effects. Finally, indirect effects play a lesser role for material resources accounting for just under one-third (32 per cent) of the total effect.

Overall it can be seen that indirect effects play a key role in the relationship between living in a lone mother household and child well-being. Detailed consideration will now be given to the role played by each of the mediators across the four domains of child well-being.

Household income

Unsurprisingly, household income plays an important role in the relationship between living in a lone mother household and child well-being. Considering first the relationship between living in a lone mother household and household income, it was hypothesized that household income in lone mother households is poorer than in two-natural parent households. The results are supportive of this hypothesis. Table 5.5 illustrates that the direct path between living in a lone mother household and household income is negative and statistically significant indicating that the equivalised household income in lone mother households is, on average, lower than that in two natural parent households. In addition, effect size is large (-0.66) signifying that this relationship is not only statistically significant but also of considerable practical importance.

In addition, the results also provide support for the hypothesis that household income is directly associated with child well-being. Household income exhibited a statistically

significant negative association with social, emotional and behavioural difficulties, and statistically significant positive associations with cognitive development and ability, general health and material resources. The standardised path estimates presented in table 5.6 indicate that the pathway between household income and child well-being is strongest for material resources (0.37). In the other domains, effects were smaller; -0.12 for social, emotional and behavioural difficulties, 0.15 for cognitive development and ability and 0.13 for general health. Ultimately, as would be expected, children's well-being across all four domains is enhanced by higher household income with lower levels of social, emotional and behavioural difficulties, greater cognitive development and ability, better general health and increased material resources.

In terms of its mediating role, living in a lone mother household was statistically significantly associated with all four domains of child well-being indirectly via household income. Unsurprisingly, the influence of household income was again most apparent when considering children's material situation. In this domain it accounted for 89 per cent of all indirect effects and 27 per cent of the total effects. In the domains of cognitive development and ability and general health, the indirect effects of lone motherhood transmitted via household income were again considerable, accounting for more than two thirds (71 per cent) of all indirect effects in the former and more than half (57 per cent) in the latter. Finally, the mediating influence of household income was smallest for social, emotional and behavioural difficulties but nonetheless constituted more than one-third (40 per cent) of all indirect effects. Despite acting as an important mediator in the relationship between lone motherhood and child well-being, effect sizes were small for general health, social, emotional and behavioural difficulties, and cognitive development and ability (0.09, 0.08 and 0.1 respectively). Effect size was considerably larger for material resources (-0.25) suggesting that whilst all four effects were statistically significant, as would be expected, the mediating role of household income is of greater practical importance for material resources than the other domains of well-being.

Maternal mental health

Maternal mental health too plays an important role for child well-being both directly, and as a mechanism through which living in a lone mother household indirectly influences child well-being. In the first instance, consideration of the direct pathway between living in a lone mother household and maternal mental health provides support for the hypothesis that

maternal mental health is poorer in lone mother households compared to two natural parent households. Table 5.5 indicates there to be a statistically significant negative association between living in a lone mother household and maternal mental health, that is to say that lone mothers, on average, have poorer maternal health than their contemporaries in two natural parent households. In addition, the standardised estimates reveal the effect to be of medium size (-0.36) indicating this relationship to be of practical importance as well as statistically significant.

In the second instance, table 5.6 depicts the direct pathways between maternal mental health and each of the domains of child well-being. It was hypothesized that child well-being would be diminished by poorer maternal mental health. The results are supportive of this hypothesis for social, emotional and behavioural difficulties and general health, revealing statistically significant direct pathways between maternal mental health and each of these domains. Effect sizes were however small, 0.10 for general health and -0.11 for social, emotional and behavioural difficulties. Furthermore, there were no statistically significant direct associations between maternal mental health and children's cognitive development or material resources.

Finally, the results in table 5.4 reveal the mediating role of maternal mental health in the relationship between living in a lone mother household and child well-being. Living in a lone mother household was statistically significantly associated with a greater level of social, emotional and behavioural difficulties and poorer general health, indirectly via maternal mental health. The influence of maternal mental health was strongest for general health accounting for just under a quarter (24 per cent) of all indirect effects although effect size was small (-0.04). Effect size was equally small for social, emotional and behavioural difficulties (0.04) where the indirect effects of lone motherhood transmitted via maternal mental health accounted for 20 per cent of all indirect effects. There were no statistically significant indirect association between living in a lone mother household and children's cognitive development or material resources transmitted via maternal mental health.

Parenting behaviours

Consideration of the associations between living in a lone mother household, parenting behaviours and child well-being reveal interesting results. Considering first the direct pathways between living in a lone mother household and parenting behaviours, it was

hypothesized that parenting behaviours would be poorer in lone mother households than two natural parent households. The results displayed in table 5.5 presenting estimates for the direct pathways between lone motherhood and each of the parenting behaviours are not supportive of this hypothesis. In the first instance, the direct pathways between lone motherhood and levels of mother-child conflict and parental supervision are statistically insignificant indicating that these parenting behaviours do not significantly differ across lone mother and two natural parent households. In the second instance, whilst a statistically significant pathway was found between living in a lone mother household and levels of household chaos, the relationship was not in the expected direction. Levels of chaos in lone mother households were expected to be higher than those in two natural parent households. The results presented in table 5.1 provided initial support for this hypothesis indicating that levels of household chaos were indeed statistically significantly higher in lone mother households than two natural parent households. However, after controlling for a range of confounding influences, lone mother households were found to have statistically significantly lower levels of household chaos than two natural parent households. In addition, whilst effect size was strictly speaking small at -0.23, it is nonetheless large enough to suggest this is a practically important effect. It is important to interpret this finding in the context of the complex network of relationships amongst lone motherhood and the other mediating variables, specifically household income and maternal mental health. Both household income and maternal mental health are included as controls when considering the relationship between living in a lone mother household and levels of household chaos. Consequently, this finding is not to be interpreted as simply that lone mother households are on average less chaotic than two natural parent households. Rather this result reveals that, all else being equal across the range of control variables, lone mother households are on average less chaotic than two natural parent households. However, table 5.7 reveals statistically significant direct pathways between household income and household chaos, and maternal mental health and household chaos, with poorer household income and poorer maternal mental health being associated with higher levels of household chaos. In addition, there are statistically significant direct negative associations between living in a lone mother household and both household income and maternal mental health. As such it would seem that in reality, on average, all is not equal across the range of control variables. Bearing this caveat in mind, the finding that, lone mother households are, after controlling for a range of confounding influences, on average less chaotic than two natural parent households remains an interesting but perhaps

less surprising finding. It may be that the circumstances of lone mothers necessitate a more organised approach thereby reducing levels of household chaos. Lone mothers lack a co-parental figure with which to share the burden of care and domestic responsibilities which is present, at least theoretically, in two natural parent households. Whilst the presence of a co-parental figure may be expected to reduce levels of household chaos, in the absence of clearly defined roles and responsibilities for both parents it perhaps has the potential to create greater levels of chaos in the household. In addition, in situations where the co-parent does not share the domestic burden this could lead to an increased burden upon the mother whose caring responsibilities may extend beyond the children to the co-parent. This increased burden and responsibility could potentially lead to higher levels of household chaos.

In terms of associations between parenting behaviours and child well-being, it was hypothesized that poorer parenting behaviours would be associated with diminished child well-being. The results presented in table 5.6 largely, although not uniformly, support this hypothesis. Firstly, the results reveal statistically significant direct pathways between each of the parenting behaviours and levels of social, emotional and behavioural difficulties, with all relationships operating in the expected direction. That is to say, higher levels of household chaos and mother-child conflict are associated with greater social, emotional and behavioural difficulties whilst higher levels of parental supervision are associated with fewer social, emotional and behavioural difficulties. The pathway was strongest for conflict with a large effect size (0.49), followed by household chaos with a medium effect size (0.27) and was weakest for parental supervision (-0.08).

Secondly, the results reveal statistically significant direct pathways from both parental supervision and levels of mother-child conflict to cognitive development and ability, with all relationships again operating in the expected direction. Higher levels of parental supervision and lower levels of conflict are associated with enhanced cognitive development and ability. The pathway from conflict was marginally stronger than that from parental supervision although effect sizes for both were small, -0.11 and 0.10 respectively. There was no statistically significant direct pathway between levels of household chaos and cognitive development and ability.

Thirdly, the results reveal statistically significant direct pathways between each of the parenting behaviours and general health, with relationships again operating in the expected

direction. Higher levels of household chaos and mother-child conflict are associated with poorer general health whilst higher levels of parental supervision are associated with better general health. Effect sizes for all associations were small, with the strongest pathway from supervision (0.11) and weaker pathways for chaos and conflict (both -0.06).

Finally, there were statistically significant direct pathways from each of the parenting behaviours to material resources. Higher levels of household chaos and mother-child conflict are associated with poorer material resources whilst higher levels of parental supervision are associated with greater material resources. The strongest pathway was from levels of household chaos although the effect size was small (-0.12). Pathways were weaker for levels of mother-child conflict (-0.07) and parental supervision (0.05).

In terms of the mediating role of the selected parenting behaviours, there were no statistically significant indirect pathways between living in a lone mother household and any of the four domains of child well-being transmitted via levels of mother-child conflict or levels of parental supervision. That is to say living in a lone mother household was not indirectly associated with child well-being via levels of mother-child conflict or parental supervision. Statistically significant indirect pathways from lone motherhood to children's level of social, emotional and behavioural difficulties and material resources via levels of household chaos were however found, but once again did not operate as hypothesized. Rather than being associated with poorer child well-being, the indirect influence of lone motherhood transmitted via levels of household chaos enhanced child well-being across the domains of social, emotional and behavioural difficulties and material resources. Whilst this was not what was hypothesized this result was not unexpected in light of the previously considered finding that lone motherhood was statistically significantly associated with lower levels of household chaos. As such, it follows that the indirect influence of lone motherhood on child well-being transmitted via levels of household chaos is positive. However, this finding serves to highlight that the complicated network of relationships between lone motherhood and the mediator variables merits consideration of more complex indirect pathways through which living in a non-resident father lone mother household may be associated with child well-being.

Table 5.5: Direct effects of living in a lone mother household on mediating variables

Measure	Lone mother household	
	Std.Est	St Es./S.E.
Household income	-0.66	-14.17***
Maternal mental health	-0.36	-6.86***
Household chaos	-0.23	-4.15***
Mother-child conflict	-0.03	-0.38
Parental supervision	-0.12	-1.88

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Estimates include control variables. Sweep 5 longitudinal weight and survey weights applied.

Table 5.6: Direct effects of mediating variables on child well-being

	Social, emotional and behavioural development		Cognitive development and ability		General health		Material resources	
	Std.Est	St Es./S.E.	Std.Est	St Es./S.E.	Std.Est	StEs./S.E.	Std.Est.	St Es./S.E.
Household income	-0.12	-4.75***	0.15	4.88***	0.13	4.35***	0.37	11.62***
Maternal mental health	-0.11	-5.51***	0.03	1.41	0.10	4.01***	0.03	1.46
Household chaos	0.27	13.16***	-0.03	-1.60	-0.06	-2.38*	-0.12	-4.71***
Mother-child conflict	0.49	19.05***	-0.11	-4.81***	-0.06	-2.63**	-0.07	-2.65**
Parental supervision	-0.08	-3.93***	0.10	4.12***	0.11	4.74***	0.05	2.33*

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Estimates include control variables. Sweep 5 longitudinal weight and survey weights applied.

Table 5.7: Direct effects of household income and maternal mental health on parenting behaviours

	Household chaos		Mother-child conflict		Parental supervision	
	Std.Est	St Es./S.E.	Std.Est	St Es./S.E.	Std.Est	StEs./S.E.
Household income	-0.19	-10.39***	-0/06	-2.90**	0.07	3.02**
Maternal mental health	-0.30	-19.60***	-0.32	-16.02***	-0.01	-0.30

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Estimates include control variables. Sweep 5 longitudinal weight and survey weights applied.

5.4.5 Considering more complex indirect pathways

Consideration of the indirect pathways between lone motherhood and child well-being is complicated by the associations among the mediating variables. The model specified a number of hypotheses regarding relationships between the mediating variables. It was hypothesized that both household income and maternal mental health would exhibit direct pathways to each of the parenting behaviours. More specifically, it was expected that increased household income and better maternal mental health would be associated with enhanced parenting behaviours. The results presented in table 5.7 are largely supportive of

these hypotheses. Household income exhibited a statistically significant positive direct pathway to parental supervision and statistically significant negative pathways to household chaos and levels of mother-child conflict. Maternal mental health exhibited statistically significant negative direct pathways to household chaos and levels of mother-child conflict but no statistically significant direct pathway to levels of parental supervision. In other words, increased income was associated with increased supervision and both increased income and better maternal health were associated with lower levels of chaos and conflict. Inclusion of these hypothesized relationships in the model means it is possible to examine more complex pathways through which living in a lone mother household may indirectly influence child well-being through its associations with household income and maternal mental health and their respective relationships with parenting behaviours.

Firstly, as discussed, the mediating influence of household chaos did not operate as expected. However, consideration of the indirect influence of living in a lone mother household transmitted via household income and levels of household chaos reveals a different picture. The results presented in table 5.4 indicate a positive statistically significant pathway from living in a lone mother household via household income and levels of household chaos for social, emotional and behavioural difficulties, and statistically significant negative pathways for general health and material resources. In other words, living in a lone mother household is associated with poorer household income which is related to increased household chaos which is in turn correlated with greater social, emotional and behavioural difficulties, poorer general health and poorer material resources. Similar results were found when considering the indirect influence of living in a lone mother household transmitted via maternal mental health and household chaos with a positive statistically significant pathway to social, emotional and behavioural difficulties and negative statistically significant pathways to general health and material resources. Interpreted substantively this indicates that living in lone mother household is associated with poorer maternal mental health which is related to higher levels of household chaos resulting in greater social, emotional and behavioural difficulties and diminished general health and material resources.

Secondly, whilst as noted there were no statistically significant pathways from living in a lone mother household to child well-being transmitted via levels of mother-child conflict, consideration of more complex pathways revealed interesting results. There were statistically significant pathways from living in a lone mother household via household income and levels

of conflict in the domains of social, emotional and behavioural difficulties and cognitive development and ability. That is to say that living in a lone mother household is associated with poorer household income which is associated with higher levels of conflict which is in turn associated with greater social, emotional and behavioural difficulties and poorer cognitive development and ability. In addition, there were statistically significant pathways from living in a lone mother household via maternal mental health and levels of conflict to all four domains of child well-being. As before, interpreted substantively this means that living in a lone mother household is associated with poorer maternal health which is associated with higher levels of conflict which is in turn associated with poorer outcomes in each of the four domains of child well-being.

Thirdly, as was the case with levels of mother-child conflict, there were no statistically significant indirect pathways from living in a lone mother household to child well-being transmitted via levels of parental supervision. Consideration of these more complex pathways however, again revealed interesting findings. There were statistically significant indirect pathways from living in a lone mother household to social, emotional and behavioural difficulties, cognitive development and ability and general health transmitted via household income and parental supervision. In other words, living in a lone mother household is associated with poorer household income which is in turn associated with lower levels of parental supervision resulting in, on average, poorer child well-being in terms of social, emotional and behavioural difficulties, cognitive development and ability and general health, in lone mother household compared to two natural parent households. Finally, there were no statistically significant pathways from lone motherhood to child well-being transmitted via maternal mental health and parental supervision.

It is important to note that whilst each of the more complex pathways discussed were statistically significant, in terms of practical significance effect sizes were very small ranging from 0.003 to 0.06. Substantively, however, the results serve to further emphasise the importance of income in lone mother households. Ultimately, the results suggest that the effects normally associated with living in a lone mother household, for example, poorer child well-being and poorer parenting behaviours are actually effects of the lower household income typically characterising these households. The importance of maternal mental health was similarly highlighted by the results. In addition, consideration of these more complex pathways serves to highlight the intricacy of the relationships between living in a lone mother

household, the mediating variables and child well-being, and the difficulties inherent in unpicking this complex network of relationships. That a number of these more complex pathways were found to be statistically significant, serves to highlight the necessity of continuing to probe this complex network of relationships more deeply and continuing to stretch the theoretical and methodological boundaries of our exploration of the relationship between living in non-resident father lone mother household and child well-being.

5.4.6 Re-partnered mother households and child well-being

Whilst it was expected that living in a re-partnered mother household would alleviate some of the negative associations between non-resident fatherhood and child well-being, it was hypothesized that child well-being in re-partnered mother households would remain poorer than that in two natural parent households. The analysis however was not supportive of this hypothesis. The results presented in table 5.8 indicate there to be no statistically significant total, direct or indirect effects between living in a re-partnered mother household and child well-being. That is to say, there were no statistically significant differences in the well-being of children across re-partnered mother households and two natural parent households. From these results it can be concluded that the current results do not support the hypothesis that child well-being is poorer in non-resident father households compared to two natural parent households for those households in which the mother has re-partnered.

What might explain this finding? In the first instance, considering the selected mediating variables, it was hypothesized that household income, maternal mental health and parenting behaviours would be poorer in re-partnered mother households than in two natural parent households. The estimates presented in table 5.9 are unsupportive of this hypothesis revealing there to be no statistically significant pathways between living in a re-partnered mother and the mediating variables. In other words, the circumstances of re-partnered mother households in terms of household income, maternal mental health and parenting behaviours were not statistically significantly different to those characterising two natural parent households. It would seem therefore that upon a lone mother re-partnering, many of the disadvantaged circumstances associated with non-resident fatherhood appear to be alleviated. The important mediating influences of household income and maternal mental health, and through more complex pathways parenting behaviours, which transmit much of the negative influence of non-resident fatherhood in lone mother households do not operate to such an extent as to render the well-being of children in re-partnered mother households statistically significantly

different to that of children in two natural parent households. Ultimately, in view of the results suggesting that much of the negative associations between living in a lone mother household and child well-being are transmitted indirectly via household income, it seems possible that the higher household income in re-partnered mother households is a key explanation as to why the negative associations between child well-being and living in a non-resident father household evident in lone mother households are not evident in re-partnered mother households. This resonates with recent analysis of GUS by Treanor (2015) indicating significant direct negative effects between children's social, emotional and behavioural well-being and household income and maternal emotional distress, but, with the exception of having a mother with repeated separations and re-partnering, not between social, emotional and behavioural well-being and family composition.

In the second instance, whilst the lack of statistically significant direct effects between living in a non-resident father household and child well-being for both re-partnered households and lone mother households (with the exception of material resources), may seem to suggest the absence of the child's natural father from the household is not inherently detrimental to child well-being, it does not necessarily follow that the presence of a paternal figure is not potentially beneficial to child well-being. As such, the finding that the well-being of children in re-partnered mother households is not statistically significantly different to that of their contemporaries in two natural parent households may suggest that the presence of a paternal figure is conducive to child well-being, regardless of whether the paternal figure is the child's natural father. The biological link is perhaps less important than the presence of a father figure. Of course that is not to suggest that the presence of a paternal figure is inherently beneficial to child well-being, the nature and quality of the paternal-child relationship will almost certainly be of considerable importance.

Alternatively, that child well-being in re-partnered mother households is not statistically significantly different to that in two natural mother households may be due to some other characteristic(s) or circumstance(s), other than simply the presence of a paternal figure, conducive to child well-being, shared by both household types which distinguishes them from lone mother households. In considering the results relating to re-partnered mother households, it is very important to bear in mind the particularly small sample size involved as as the sample may have simply been too small to detect statistically significant differences between two natural parent and re-partnered mother households.

Table 5.8: Direct, indirect and total effects of living in a re-partnered mother household on child well-being

	Social, emotional and behavioural development		Cognitive development and ability		General health		Material resources	
	Std.Est.	**St Es./S.E.**	**Std.Est.**	**St Es./S.E.**	**Std.Est.**	**St Es./S.E.**	**Std.Est.**	**St Es./S.E.**
Total	-0.00	-0.02	-0.03	-0.17	-0.14	-1.14	-0.00	-0.02
Total direct	-0.01	0.96	-0.01	-0.05	-0.11	-0.10	0.03	0.22
Total indirect	0.00	0.04	-0.02	-0.65	-0.03	-0.87	-0.04	-0.87
Via Income	0.01	0.83	-0.01	-0.84	-0.01	-0.86	-0.03	-0.86
Via maternal mental health	0.00	0.18	-0.00	-0.18	-0.00	-0.18	-0.00	-0.18
Via chaos	0.01	0.31	-0.00	-0.30	-0.00	-0.31	-0.00	-0.30
Via conflict	-0.04	-0.49	0.01	0.49	0.01	0.49	0.01	0.48
Via parental supervision	0.01	0.99	-0.01	-0.95	-0.01	-0.92	-0.01	-0.92
Via income, chaos	0.00	0.84	0.00	-0.81	-0.00	-0.76	-0.00	-0.81
Via income, conflict	0.00	0.90	0.00	-0.86	0.00	-0.81	0.00	-0.86
Via income, supervision	0.00	0.80	0.00	-0.80	-0.00	-0.78	0.00	-0.7
Via maternal mental health, chaos	0.00	0.18	0.00	-0.18	0.00	-0.18	-0.00	-0.18
Via maternal mental health, conflict	0.00	0.18	-0.00	-0.18	0.00	-0.18	0.00	-0.18
Via maternal mental health, supervision	0.00	-0.15	0.00	0.15	0.00	0.15	0.00	0.14

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Estimates include control variables. Sweep 5 longitudinal weight and survey weights applied.

Table 5.9: Direct effects of living in a re-partnered mother household on mediating variables

Measure	**Re-partnered mother household**	
	Std.Est	St Es./S.E.
Household income	-0.07	-0.85
Maternal mental health	-0.02	-0.12
Household chaos	0.03	0.30
Mother-child conflict	-0.07	-0.50
Parental supervision	-0.13	-0.98

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Estimates include control variables. Sweep 5 longitudinal weight and survey weights applied.

5.5 Discussion of findings

The analyses presented in this chapter raise a number of interesting findings. The review of the literature highlighted a key limitation of existing studies of non-resident fatherhood to be their adoption of a narrow, restrictive conceptualisation of child well-being. A key aim of the current research therefore was to develop a theoretically informed, comprehensive measure of child well-being thus enabling a more nuanced, detailed exploration of the associations between non-resident fatherhood and child well-being. Informed by the wider child well-being literature, the current study conceptualises child well-being as a multi-dimensional construct encompassing four distinct domains of well-being, namely, social, emotional and behavioural development, cognitive development and ability, physical health and material situation (Pollard and Lee, 2003). Overall, the results of the confirmatory factor analysis are supportive of a multi-dimensional approach to conceptualising and measuring child well-being. More specifically, the results support inclusion of the four domains of well-being identified as key in the literature with indicators tapping into each of these four domains featuring in the final measurement model.

The development of a more comprehensive construct of child well-being is an important contribution of the current research. As highlighted in the literature review, few, if any studies of non-resident fatherhood have taken such a comprehensive approach to the conceptualisation of child well-being and in this regard, the current research is a welcome addition to the field. In particular, children's physical health and material resources, as distinct from household income, have seldom been considered as aspects of well-being in studies of non-resident fatherhood and their inclusion in the current study is therefore a valuable aspect of the current study. Indeed Adamson and Johnson (2013: 597) specifically called for future studies of non-resident fatherhood to give consideration to physical health as an important aspect of child well-being. Moreover, studies which have considered multiple measures of child well-being have typically used multiple models to separately examine the selected child outcomes. The use of SEM in the current study has allowed multiple measures of well-being to be considered in a single model constituting a further important contribution to the field of existing studies. Finally, that the different domains of well-being exhibited different associations with living in a non-resident father households is illustrative of the usefulness of developing a theoretically informed multi-dimensional construct of child well-

being for studies seeking to explore associations between non-resident fatherhood and child well-being.

Beyond development of a comprehensive measure of child well-being, this chapter sought to explore associations between living in a non-resident father household and child well-being. Comparisons were made of the well-being of children in two natural parent households with children in lone mother households and children in re-partnered mother households. More specifically, it sought to test the hypothesis that living in a non-resident father household is associated with poorer child well-being. In terms of lone mother households, the results were supportive of this hypothesis indicating child well-being in such households to be statistically significantly poorer across all four domains of well-being compared to two natural parent households. However, it is important to stress that the results were *not* supportive of this hypothesis in terms of direct effects between living in a lone mother household and child well-being, with the exception of material resources. Rather the results suggest that much of the negative associations between living in a lone mother household and child well-being are transmitted indirectly via the influence of income and, to a lesser extent, maternal mental health rather than being a function of paternal absence per se. In addition, in terms of re-partnered mother households, the results were unsupportive of this key hypothesis. The results indicate that the well-being of children living in non-resident father households in which the mother has re-partnered was not statistically significantly different to that of their contemporaries in two natural parent households. In terms of differences in findings regarding lone mother and re-partnered mother households, it is somewhat difficult to situate these findings within the existing literature as the two key meta-analyses conducted by Amato and Keith (1991) and Amato (2001) did not distinguish between these two household types. However, the general conclusions from both of these studies suggest child well-being is poorer in non-resident father households compared to two natural parent households across a range of outcomes. As such that the current study found the well-being of children in lone mother households to be poorer than that of their contemporaries in two natural parent households across all four domains of well-being certainly accords with these general conclusions. However, that the well-being of children in re-partnered households is not statistically significantly poorer than their contemporaries in two natural parent household does not accord with the findings of Brown (2004) who found the well-being of children in step-families to be similar to that of children in lone mother households. This finding

however is perhaps unsurprising when considered in light of the current findings regarding lone mother households which suggest that negative associations between living in a lone mother household are largely transmitted indirectly via income and maternal mental health rather than directly through paternal absence. Whilst the current results may not fit neatly with those of existing studies, they serve to highlight the importance of distinguishing between lone mother and re-partnered mother households emphasising that the simple dichotomy of resident and non-resident father households is insufficient to capture the underlying dynamics of family forms and structures.

Beyond a simple comparison of child well-being across non-resident father and two natural parent households, the research sought to contribute to understandings of the pathways through which living in a non-resident father household may operate to influence child well-being. In terms of direct associations, the results indicating child well-being to be poorer in lone mother but not re-partnered mother households could themselves be taken as suggesting there is nothing inherently detrimental in the absence of the child's natural father from the household for child well-being. In other words, it is not the absence of the child's natural father from the household per se, that is associated with the poorer child well-being characterising lone mother households. If this were the case, then children in re-partnered mother households would also experience statistically significantly poorer well-being than their contemporaries in two natural parent households. This conclusion was largely supported by consideration of the direct pathways between living in lone mother household and child well-being. With the exception of children's material situation, the results revealed no statistically significant direct effects between living in a lone mother household and child well-being. This is further suggestive that the absence of the child's natural father from the household is not detrimental to child well-being per se. Even with regard to the child's material situation, the presence of this direct pathway seems unlikely to be capturing the inherently damaging effect of the absence of the child's natural father from the household. If there were such an association then we would have expected to see a similar statistically significant direct pathway between living in a re-partnered mother household and children's material situation. In the first instance, it might be thought that poorer material resources are a function of the poorer household income typically characterising these households. However, the analysis controlled for household income when considering this association suggesting the negative direct association between living in a lone mother household and

material resources has another possible explanation. Firstly, it is possible that this association is a function of the absence of a paternal figure as opposed to the absence of the child's natural father. Secondly, it might not necessarily be the absence of a paternal figure but rather the absence of a second care-giver from the household. Finally, it is possible that the association is not attributable to the absence of a paternal figure or a second care-giver at all but rather to some other circumstance characterising lone mother households not considered by the current model. Reflecting upon the selected indicators of material well-being may provide some plausible insights into this finding. For example, the CFA results indicated the strongest indicator of material resources to be whether the household had continuous access to a vehicle. It is possible that mothers in lone mother households are for some reason less likely to drive than other mothers or perhaps more plausibly, less likely to be able to afford a car. If this is the case then the direct association between the absence of the child's natural father from the household and material resources may be capturing some other characteristic of lone mother households not considered in the current model rather than being a function of the absence of a paternal figure or second care-giver from the household. Alternatively, it is possible that females are less likely to drive than males. If this is the case then it may be the absence of a male figure from the household which is associated with poorer material resources. Further research is necessary to try to unpick whether it is the absence of a paternal figure, the absence of second care-giver or some other characteristic of lone mother households which is detrimental to children's material well-being.

Finally, with regard to this particular finding, it is interesting and indeed important to note that the statistically significant direct pathway between living in a lone mother household and material resources suggests that there is something about living in a non-resident father lone mother household which is associated with material disadvantage, over and above the effect of household income. As such, this finding provides support for the decision to include material resources as a separate domain of child well-being and resonates with previous research suggesting that children's and the wider household's material resources are more than simply a reflection of household income (Middleton et al. 1997; Treanor, 2014).

The results considered thus far suggest that the poorer child well-being characterising lone mother households may not be directly attributable to the absence of the child's natural father from the household. This resonates with both theory and existing evidence which suggests that non-resident fatherhood may operate to influence child well-being indirectly via a range

of explanatory mechanisms. The use of SEM allowed the current research to explore in considerable depth and detail a number of potential explanatory mechanisms identified in the literature namely, household income, maternal mental health and parenting behaviours. This in-depth consideration is an important contribution of the current study helping to develop and expand our understanding of the associations between non-resident fatherhood and child well-being and move beyond the dichotomy of father presence / absence. The results indicated household income and, to a lesser extent, maternal mental health to be key pathways via which living in a non-resident father lone mother household may be negatively associated with child well-being. As was hypothesised, the results indicate household income and maternal mental health to be statistically significantly poorer in lone mother households compared to two natural parent households. This resonates with a wealth of existing evidence (Marryat et al. 2009, Kiernan et al. 2011, Brown, 2000, 2002, 2004). In terms of household income, the results revealed statistically significant direct effects with each of the four domains of well-being. Through household income, living in a non-resident father lone mother household was indirectly associated with poorer child well-being across all four domains. More specifically, household income accounted for 89 per cent of all indirect effects for material situation, 71 per cent of all indirect effects for cognitive development, 57 per cent of all indirect effects for general health and 40 per cent of all indirect effects for social, emotional and behavioural development.

In terms of maternal health, the results revealed statistically significant direct effects with child well-being in the domains of social, emotional and behavioural development and general health. Through maternal mental health, living in a lone mother household was indirectly associated with poorer general health and greater levels of social, emotional and behavioural difficulties. More specifically, maternal mental health accounted for 24 per cent of all indirect effects in the domain of general health and 20 per cent in the domain of social, emotional and behavioural well-being.

As noted, these findings suggesting the importance of household income and maternal mental health for child well-being resonate with those found by Treanor (2015) in her study of financial vulnerability, maternal emotional distress and children's social, emotional and behavioural well-being. Using SEM with GUS data, Treanor found strong negative associations between children's social, emotional and behavioural well-being and financial vulnerability, household income and maternal emotional distress. Two-thirds of the effect of

financial vulnerability was found to be experienced indirectly through maternal emotional distress. The current research did not explore how income and maternal mental health might be related but Treanor's (2015) findings suggest this would be a useful development of the current findings. In addition, interestingly, financial vulnerability which is a broader more subjective measure than household income encompassing objective deprivation resulting from household income and also aspects of subjective deprivation such as feelings towards coping on income was found to be more strongly associated with maternal emotional distress than household income. Financial vulnerability is not captured by the current study but could helpfully be used to develop the current findings. Treanor (2015) also found that the only family structure that had a direct negative association with social, emotional and behavioural well-being was having a mother with repeated separations and re-partnerings. The current results again resonate with this finding in suggesting that living in a non-resident father household is not directly associated with poorer child well-being (with the exception of material resources).

In terms of the mediating role of parenting behaviours, the current results were somewhat more surprising. Contrary to a number of sociological theories the current results did not support the hypothesis that parenting behaviours are necessarily poorer in lone mother households compared to two natural parent households (Biblarz and Raftery, 1999). Controlling for a range of confounding factors, levels of parental supervision and mother-child conflict in lone mother households were not statistically significantly different to those in two natural parent households. As such, neither of these variables operated to directly mediate the relationship between living in a lone mother household and child well-being. Moreover, levels of household chaos were in fact found to be statistically significantly lower in lone mother households relative to two natural parent households. However, as discussed, the lower household income and higher levels of maternal mental health difficulties in lone mother households were both associated with poorer parenting behaviours with these variables again acting as key pathways through which negative associations between living in a lone mother household and child well-being are experienced.

A further strength and key contribution of the current research is consideration of more complex pathways through which living in a non-resident father household may operate to indirectly influence child well-being. The results revealed a number of statistically significant complex pathways and overall served to further highlight the importance of income and

maternal mental health in lone mother households. Firstly, the lower household income characterising lone mother households was associated with higher levels of household chaos which was in turn associated with poorer child well-being in the domains of social, emotional and behavioural difficulties, general health and material resources. Secondly, living in a lone mother household exhibited further negative associations with children's social, emotional and behavioural well-being and cognitive development and ability via household income and levels of household conflict. Thirdly, the poorer household income characterising lone mother households was associated with lower levels of parental supervision which was in turn associated with increased social, emotional and behavioural difficulties, lesser cognitive ability and development and poorer general health. Complex pathways of associations were also found to operate via the poorer maternal mental health typically characterising lone mother households. In the first instance, lesser maternal mental health was associated with higher levels of household chaos which was in turn associated with poorer child well-being in the domains of social, emotional and behavioural development, general health and material resources. In the second instance, lesser maternal mental health was associated with higher levels of household conflict which was associated with poorer child outcomes across all four domains of well-being. It is again somewhat difficult to situate these findings within the existing research as studies have not typically examined such complex pathways. The current research certainly seems to go further than many existing studies in its attempts to unpick the network of associations and dynamics underlying child well-being in non-resident father households. Overall, the results strongly resonate with the conclusions of both Amato (2005) and Brown (2004) that simple dichotomies of family structure such as father presence / absence or married / unmarried parents are insufficient to capture the complexities and underlying dynamics of family form. Ultimately, as noted previously, these results serve to highlight the need to continue attempts to unpick the intricacies of the relationships between living in a lone mother household, mediating mechanisms and child well-being. In this regard SEM is a valuable tool which can undoubtedly be employed further to enhance and develop knowledge and understanding in the field of non-resident fatherhood studies.

Discussion thus far has primarily centred on findings concerned with lone mother households and child well-being. However as noted, that the well-being of children in re-partnered households was *not* statistically significantly poorer than their contemporaries in two natural parent household was a somewhat surprising finding and thus merits further discussion. In

particular, it is important to consider what might be concluded from this finding, bearing in mind that the small sample size of re-partnered mother households may mean that the analysis was simply underpowered to detect statistically significant associations. In the first instance, it may be that the well-being of children in re-partnered mother households is not statistically significantly poorer than that in two natural parent households because the poorer circumstances typically characterising lone mother households do not afflict re-partnered mother households. The results are certainly supportive of such an assertion, indicating that the circumstances of re-partnered mother households in terms of household income, maternal mental health and parenting behaviours were not statistically significantly different to those characterising two natural parent households. Given the importance of household income and maternal mental health as mediating pathways between living in a lone mother household and child well-being it seems likely that the higher household income and better maternal mental health in re-partnered mother households is a key explanation for why child well-being was not found to be statistically significantly poorer such households.

In the second instance, the results may suggest that there is something about the presence of a paternal figure which is conducive to child well-being as opposed to the presence of the child's natural father. It is important to emphasise that simply because the current results suggest that the absence of the child's natural father from the household is not inherently detrimental to child well-being, it does not necessarily follow that child well-being cannot be enhanced by the presence of a paternal figure. Indeed there is much qualitative research suggesting the benefits for child well-being that can arise from positive paternal involvement (see for example, Lamb, 2010). The current finding may be tapping into some of these positive benefits. If this is the case then the current results seem to suggest that the biological link is perhaps of less importance for child well-being than the presence of a father figure.

Finally, as noted , that the well-being of children in re-partnered mother households is not statistically significantly different to their contemporaries in two natural parent households may be due to some other mechanism not included in the current analyses. For example, re-partnered mother households and two natural parent households may have in common some other characteristic(s) or circumstance(s), other than enhanced household circumstances and the presence of a paternal figure, conducive to child well-being which distinguishes them from lone mother households. Ultimately, as the current analysis does not directly compare child well-being and household circumstances across lone mother and re-partnered mother

households, it is not possible to explore in depth the differences which may distinguish these two types of non-resident father households. It would therefore be interesting to undertake further analysis of the data used in the current analysis to directly compare lone mother and re-partnered mother households.

Taken collectively, the findings raise important implications for studies of child well-being in non-resident father households. Firstly, the complexity of the network of associations at play in non-resident father lone mother households serves to highlight the usefulness of the conceptual framework for exploring associations between child well-being and non-resident fatherhood and offers strong support to Bronfrenner's (1979) ecological approach to child well-being as a useful lens through which to explore associations. Secondly, that the well-being of children in lone mother households, but not re-partnered mother households, was statistically significantly poorer relative to two natural parent households raises highlights the important consequences that can flow from decisions as how to define fathers and fatherhood. Had the current research not distinguished between these two types of non-resident father households, an important aspect of the findings would have remained masked by simple dichotomies of father presence / absence.

Considering now the implications of the current findings for law and policy, it has been seen that both law and policy appear keen to promote contact between non-resident fathers and their children. This approach appears to be underpinned by an assumption that the absence of the child's natural father from the household is inherently detrimental for child well-being and that contact will in some way recompense for this disadvantage thus enhancing well-being. The findings presented in this chapter do not wholly accord with such an assumption. As discussed, the results suggest that the absence of the child's natural father from the household is not inherently detrimental to child well-being as such it is arguable that the assumptions underlying the legal and policy approach are misplaced. However, simply because the absence of a child's natural father may not be detrimental per se, it does not necessarily follow that non-resident father involvement cannot be beneficial for child well-being, either directly or indirectly. This matter is the focus of the following chapter.

Finally, as the current research is concerned with the relationship between non-resident fatherhood and child well-being rather than lone motherhood per se, no comprehensive review of the legislative and policy landscape relative to lone mothers was undertaken.

However given the current results, it would be remiss to not briefly mention potential implications in this regard. The deleterious impacts of poverty and poor maternal mental health for child well-being are well documented and the current results suggest that lone mother households are typically afflicted by both. The results further suggest that much of the disadvantage for child well-being associated with living in a lone mother household may be transmitted via these mediating variables rather than being directly attributable to paternal absence per se. For this, there is of course no easy solution. However, broadly speaking, it seems imperative to note that policy and legislative reforms impacting upon lone mother households ought to be scrutinised with great care the extent to which they may serve to inflict greater economic hardship and increased stress upon such households. Conversely, policy and legislative developments which seek to support lone mothers both financially and in terms of their mental health may be potentially beneficial for child well-being in lone mother households. The key consideration for law and policy to consider is the means by which the income of lone mother households can be supported and indeed boosted. Stricter enforcement of non-resident fathers' child support obligations coupled with higher levels of support could certainly serve to improve household income in lone mother households. However, there will be situations where child support can simply not be secured or where such support will not be enough to lift households out of financial difficulties. Attention then turns to the role of the welfare system. Reduction in child tax credits is a particular concern as such reductions disproportionately affect lone parent households (HMRC, 2015). A key means of supporting the income of lone mother households therefore is to maintain and protect child tax credits. Ultimately, a two-pronged approach securing greater levels of financial support from fathers and protecting, if not increasing, current welfare support is likely required to support and boost income in lone mother households.

5.6 Conclusions

There are a number of key conclusions to be drawn from this chapter. Firstly, the results suggest child well-being is statistically significantly poorer in lone mother households compared to two natural parent households (although primarily in an indirect manner), but that the well-being of children in re-partnered mother households is not statistically significantly different to that of their contemporaries in two natural parent households.

Secondly, with the exception of material resources, the results indicate no statistically significant direct associations between living in a lone mother household and child well-

being. This, coupled with the finding that child well-being in re-partnered mother households is not statistically significantly poorer than that in two natural parent households suggests there is nothing inherently detrimental in the absence of the child's natural father from the household. Instead, the results suggest that much of the negative associations evident in lone mother households are transmitted indirectly via mediating mechanisms, primarily income and to a lesser extent maternal mental health. Consistent with previous research the results indicated household income and maternal mental health to be statistically significantly poorer in lone mother households and to be key pathways through which living in a lone mother household is indirectly associated with poorer child well-being. Interestingly however, the results suggest that living in a lone mother household is not associated with poorer parenting behaviours per se. After controlling for a range of confounding influences including income and maternal mental health, no statistically significant differences in the levels of mother-child conflict and parental supervision were found. Moreover, levels of household chaos were found to be statistically significantly less in lone mother households compared to two natural parent households.

Thirdly, the results clearly highlighted the complexity of the pathways through which the negative associations between living in a lone mother household and child well-being may operate. For example, whilst living in a lone mother household was not statistically significantly associated with poorer parenting behaviours per se, the poorer household income and maternal mental health typically characterising such households was associated with poorer parenting behaviours which was then in turn associated with poorer child well-being. This finding again served to highlight the importance of household income and maternal mental health in lone mother households.

Fourthly, that child well-being is not statistically significantly different across re-partnered mother households and two natural parent households is a particularly interesting and potentially important finding. It is possible this finding can be explained by the fact that household income, maternal health and parenting behaviours were not found to be statistically significantly different across re-partnered mother households and two natural parent households. As such it may simply be that child well-being is enhanced by maternal re-partnering due to improved household circumstances, primarily income and maternal mental health. However, it is also possible that there is something about the presence of a father figure, regardless of biological link, that is directly beneficial to child well-being.

Overall, the results clearly highlight the limitations of examining associations between child well-being and non-resident fatherhood through the simple lens of father presence / absence. Simple dichotomies such as this undoubtedly serve to mask the underlying complex network of associations at play. The use of complex statistical modelling such as SEM therefore potentially has much to offer to development of a more detailed, nuanced understanding of associations between child well-being and non-resident fatherhood. The results also serve to highlight the usefulness of an ecological approach to child well-being which seeks to take account of the complex pathways through which child well-being may be influenced.

Finally, whilst this chapter has addressed its key aims of exploring associations between living in a non-resident father household and child well-being and the potential pathways through which such associations may operate, in addition to adopting a broader conceptualisation of child well-being than is typically the case in existing studies of non-resident fatherhood, there are a number of ways in which future research could improve and build upon the current analysis. In the first instance, whilst development of the latent construct of child well-being is undoubtedly a key contribution of the current research there remains room for improvement in the operationalisation of this concept. Most notably, the construct of child well-being would undoubtedly benefit from inclusion of a subjective aspect of well-being. Importantly, GUS has now undertaken data collection directly with the study children themselves and it is therefore possible to explore development of the construct of child well-being to include a subjective element. This is an interesting and important avenue for future research to pursue.

In the second instance, the current results suggest there are differences between non-resident father lone mother and re-partnered mother households both in terms of child well-being and household circumstances. However, the current research does not directly explore differences between these household types. As such, further research using GUS to directly compare these household types may help us better understand the potential differences between these two types of non-resident father households. In particular, it is important to explore further whether there may be a direct positive association between the presence of a paternal figure, as opposed to presence of a biological father, and child well-being.

Finally, overall the findings in this chapter would benefit from consideration from a longitudinal perspective. It is important to explore whether associations between living in a

non-resident father household and child well-being, and the pathways through which such associations operate, change over time as children move from their early years into middle childhood and beyond. Moreover, longitudinal analysis would also allow issues of causality to be explored. For example, where fathers have previously resided with their children, does their exit from the household result in poorer household economic circumstances and parental resources or do such circumstances typically exist before this exit? Indeed, may such circumstances be a contributing cause of a transition to non-resident fatherhood rather than a consequence? In order to continue to advance knowledge and understanding of the associations between non-resident fatherhood and child well-being, longitudinal analysis is undoubtedly essential.

Chapter 6: Non-resident father involvement and child well-being

6.1 Introduction

This chapter examines the associations between non-resident father involvement at age four and child well-being at age five amongst those children who have some form of contact with their non-resident father. Overall, the results in chapter five suggested that the well-being of children in lone mother households is statistically significantly poorer than that in two natural parent households although primarily indirectly via household income and maternal mental health. The well-being of children in re-partnered mother households was not however statistically significantly different to that of their contemporaries in two natural parent households. As noted, the results suggest that the poorer well-being of children in lone mother non-resident father households is largely associated with the disadvantaged circumstances, primarily household income, typically characterising such households rather than paternal absence per se. This chapter therefore seeks to understand if and how non-resident father involvement might be associated with child well-being directly or indirectly via the selected household circumstances explored in chapter five.

In doing so, this chapter addresses the third and fourth research questions detailed in chapter two:

Is non-resident father involvement associated with enhanced child well-being in the early years?

To what extent is non-resident father involvement associated with enhanced child well-being directly, and / or, indirectly via household economic circumstances and parental resources?

As detailed in the methods chapter, structural equation modelling is used to examine the direct and indirect associations between non-resident father involvement and child well-being. The child well-being measurement model developed in chapter five is used in the current analysis whilst the indirect associations to be explored are those transmitted via the selected household circumstances examined in chapter five, namely, household income, maternal mental health, household chaos, mother-child conflict and parental supervision. The control variables used for child well-being and each of the household circumstance variables in chapter five were again included in the current analysis (with the exception of maternal

ethnicity) as detailed in figure 6.3. The first task therefore is the development of a measure of non-resident father involvement using confirmatory factor analysis.

6.2 Descriptive statistics of non-resident father involvement measures

Before conducting a confirmatory factor analysis to develop a construct of non-resident father involvement, the descriptive statistics for the measures of involvement will be briefly considered. It is important to emphasise that the detailed questions regarding involvement were only asked in cases where there was some form of contact between the non-resident father and child. Whilst contact occurred in the majority of cases, some 69 per cent, there were some 31 per cent of children with a non-resident father who had no contact at sweep four and therefore these cases did not provide any information on the more detailed aspects of involvement. In terms of paternal levels of interest in the child, the results presented in table 6.1 show some 85 per cent of mothers reporting fathers to be 'somewhat' or 'very interested' in their child. Of course, this is perhaps unsurprising given that this variable encompasses only those non-resident fathers who are in contact with their child. It might be expected for some level of interest in the child to be a pre-requisite for non-resident fathers to be in contact. In such circumstances what is more surprising therefore is that some 15 per cent of mothers reported fathers to be 'not very' or 'not at all' interested in the child. Of course, as noted, the views of the mother may not reflect the views of the father or the child in this regard.

In terms of frequency of contact results indicate that most of the children who had contact with their non-resident fathers at sweep four had frequent face-to-face contact, with 71 per cent having direct contact with their fathers at least once a week. Only 10 per cent of children saw their non-resident father less than once a month. In terms of indirect contact, levels of contact were again relatively high with over half of children engaging in such contact at least once a week. However, slightly more than one third of children had no indirect contact with their father. This may simply be due to the young age of the children. It would be reasonable to hypothesise that levels of indirect contact would increase as children get older and become more able to engage in this form of contact.

With regard to frequency of overnight stays, it has been noted that this form of contact may allow non-resident fathers to engage with the paternal role on a more meaningful level. The

results show some 38 per cent of mothers reporting non-resident fathers as never having their children for overnight stays. As already noted, low levels of overnight stays might be expected in children's early years for a variety of reasons, such as reluctance on the part of the mother or child to be parted overnight or fathers' reluctance to have the child to stay. Despite relatively high levels of no overnight stays, table 6.1 does indicate that some non-resident fathers had their children to stay overnight reasonably frequently with one third having their children to stay at least once a week.

As regards outings, the results indicate that the majority of non-resident fathers who were in contact at sweep four did take their children on outings and trips. At sweep four, only 21 per cent of non-resident fathers were reported as never taking their children out. Indeed 42 per cent of non-resident fathers were reported as taking their children out at least once a week. As already noted non-resident father involvement which is restricted to recreational activities may not help to foster a full and positive father-child relationship. However it is possible that outings and such recreational activities will contribute to the development of a positive father-child relationship. Fathers should therefore not necessarily be discouraged from engaging in recreational activities for fear of fostering a peer-like relationship at the expense of a parental relationship. It is simply suggested that it may be beneficial to the father-child relationship if a non-resident father's involvement is not to be restricted to solely this type of engagement.

Considering financial and material support, the results indicate that non-resident fathers engage in these behaviours less frequently than they engage in direct and indirect contact, overnight stays and outings. As regards the frequency of buying toys, clothes or equipment for the child other than on special occasions, table 6.1 shows that at sweep four, slightly more than one third of non-resident fathers never bought toys, clothes or equipment for the child other than on special occasions. However, mothers did report some 45 per cent of non-resident fathers to engage in such behaviour at least once a month.

That the frequency with which non-resident fathers purchase toys, clothes and equipment for the child is less than other forms of involvement is perhaps unsurprising as those fathers who contribute maintenance may feel that they already make adequate material provision for their children. However, the results in fact indicate levels of both formal and informal financial

support to be rather low. According to maternal reports at sweep four, two thirds of non-resident fathers provided no formal financial support whilst slightly under two thirds provided no informal financial support. Where financial support of either type was received however, it was more likely to be received on a regular as opposed to irregular basis with some 31 per cent of mothers having reported receiving formal payments and 28 per cent having reported receiving informal payments on a regular basis.

Finally, in terms of the inter-parental relationship, more than half of mothers reported having a 'fairly' or 'very' good relationship with the child's non-resident father at sweep four. Only 17 per cent of maternal reports classified the relationship as 'fairly' or 'very' bad. Of course, this variable encompasses only those cases where there is contact between the non-resident father and child and it is possible that in many cases where there is a poor or indeed hostile relationship that contact may not occur.

Table 6.1: Descriptive statistics for variables used to construct measure of non-resident father involvement

Measure	Count	Percentage (%)
Non-resident father interest in child		
Not at all interested	8	2.2
not very interested	48	13.3
somewhat interested	113	31.1
very interested	194	53.4
Total	363	100.0
Frequency of direct contact		
Never	3	0.8
Less than once a month	35	9.6
At least once a month	66	18.2
Once or twice a week	142	39.1
3-4 times a week	50	13.8
5-6 times a week	13	3.6
Everyday	54	14.9
Total	363	100.0
Frequency of indirect contact		
Never	124	34.2
Less than once a month	23	6.3
At least once a month	26	7.2
Once or twice a week	71	19.6
3-4 times a week	33	9.1
5-6 times a week	19	5.2
Everyday	67	18.5
Total	363	100.0
Frequency of overnight stays		
Never	139	38.3
Less than once a month	36	9.9

At least once a month	67	18.5
Once or twice a week	103	28.4
3-4 times a week	15	4.1
5-6 times a week	1	0.3
Everyday	2	0.6
Total	363	100.0
Frequency of outings		
Never	77	21.4
Less than once a month	42	11.7
At least once a month	98	27.3
Once or twice a week	125	34.8
3-4 times a week	12	3.3
5-6 times a week	3	0.8
Everyday	2	0.6
Total	359	100.0
Frequency non-resident father buys toys etc.		
Never	123	34.5
Less than once a month	75	21.0
At least once a month	95	26.6
Once or twice a week	56	15.7
3-4 times a week	4	1.1
5-6 times a week	1	0.3
Everyday	3	0.8
Total	357	100.0
Formal financial contributions		
No	238	65.9
Yes, irregular	10	2.8
Yes, regular	113	31.3
Total	361	100.0
Informal financial contributions		
No	222	61.3
Yes, irregular	40	11.0
Yes, regular	100	27.6
Total	362	100.0
Relationship between mother and non-resident father	36	9.9
very bad	26	7.2
fairly bad	109	30.0
neither bad nor good	123	33.9
fairly good	69	19.0
very good	363	100.0
Total		

Source: GUS sweep four. Sweep 4 survey weights applied.

6.3 Confirmatory factor analysis of non-resident father involvement measurement model

A confirmatory factor analysis was undertaken to evaluate the measurement model depicted in figure 6.1. The nine variables presented in table 6.2 below were hypothesised to be indicators of a single latent construct of non-resident father involvement.

Table 6.2: Indicators of non-resident father involvement used in CFA

Variable name	Variable label
CSpay	Provision of financial support via the Child Support Agency or some other formal agreement
Otherpay	Provision of informal financial support
Toysetc	Frequency of purchase of books, toys or other equipment
Overnight	Frequency of overnight stays
Outings	Frequency of outings / trips
Direct	Frequency of direct contact
Indirect	Frequency of indirect contact
Interest	Level of paternal interest in the child
Prntrel	Maternal perception of relationship with non-resident father

Source: GUS sweep four

There are a number of reasons why the analysis sought to develop a single latent construct of non-resident father involvement as opposed to either constructing a four factor variable with distinct factors for each aspect of involvement or including all the available measures as predictor variables in a MIMIC model analysis. With regard to the first option this would not have been possible as there is only one measure of the inter-parental relationship which is insufficient to create a latent factor. As such, a multi-factor construct of non-resident father involvement would therefore not include the inter-parental relationship. With regard to the second option, there are a number of reasons why a MIMIC model was not conducted. In the first instance, inclusion of all indicators as predictor variables would have necessitated creation of a series of dummy variables for each resulting in a complex and difficult to interpret model. As such, the use of a single latent construct of non-resident father involvement will result in a more parsimonious model. In the second instance, the use of a single latent construct allows examination of the association between the overarching concept of non-resident father involvement and child well-being rather than simply specific aspects of involvement. Of course the relationships between particular aspects of involvement may be important and are certainly of interest. However, the use of a single latent construct of non-

resident father involvement does not preclude consideration of specific associations. Modification indices serve to highlight statistically significant associations between particular aspects of non-resident father involvement and particular aspects of child well-being. Finally, development of a single latent construct of non-resident father involvement will allow consideration of the concept of non-resident father involvement in and of itself and not simply consideration of its associations with child well-being. It will be possible to consider the relative importance of particular aspects of involvement to the overall construct. For example, is financial support a more important aspect of involvement than frequency of contact? This will be highly beneficial to our understanding of non-resident father involvement which is in turn likely to aid understanding of its associations with child well-being.

6.3.1 Initial non-resident father involvement measurement model

The initial measurement model depicted in figure 6.1 did not provide acceptable fit to the data and it was therefore necessary to re-specify the measurement model. As detailed in the methods chapter, the process of re-specification is based on consideration of item content in addition to statistical considerations. Parameter estimates were examined paying particular attention to the significance, size and direction of estimates before examining modification indices.

In the first instance, consideration of the parameter estimates revealed that all but one indicator exhibited a statistically significant association with the underlying latent variable. Whether the non-resident father contributed financially via the Child Support Agency or other formal means did not exhibit a statistically significant association with the latent variable non-resident father involvement. This variable was therefore removed from the model. This is an interesting finding. Provision of child support has long been regarded as one of the most important aspects of non-resident father involvement. As indicated in the literature review, until recently the provision of financial support has been one of the few areas where empirical evidence appeared almost unequivocally to support a clear association with enhanced child well-being. Moreover, in addition to the absence of a statistically significant relationship between payment of child support and the hypothesised latent construct of non-resident father involvement, the direction of the relationship between the two also merits comment. The payment of child support exhibited a negative relationship with the latent construct of non-resident father involvement, indicating that paying child

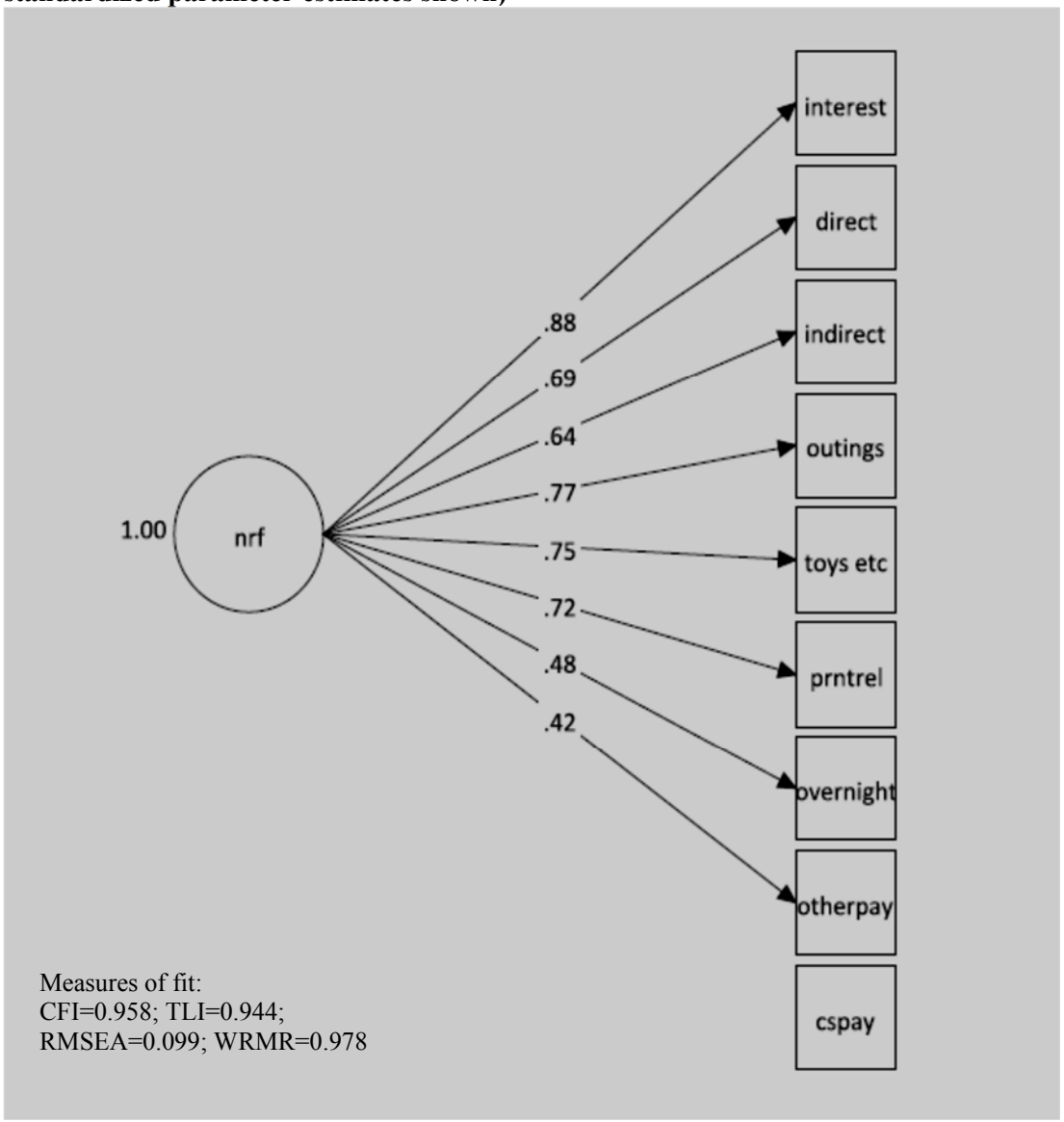
support was associated with lower levels of non-resident father involvement. This was somewhat unanticipated as previous evidence suggests that non-resident fathers who support their child financially are more likely to be involved in other ways too. However, upon reflection, both the lack of a statistically significant relationship and the unexpected direction of the relationship is perhaps less surprising. The variable in question is indicative of payments made by non-resident fathers via the Child Support Agency or other formal means. It is possible that in many circumstances, fathers who contribute financially to their children through the Child Support Agency or other formal means have been compelled to do so. As such it might therefore be expected that fathers providing such formal financial support as opposed to by means of a more informal agreement with the child's mother are less involved in their children's lives in other ways. If this is the case, it is unsurprising that this measure is a poor indicator of non-resident father involvement.

Moving on to consideration of the size of parameter estimates, all standardized factor loadings were above the conventionally adopted minimum cut-off of 0.30 (Kim and Mueller, 1978; Kline, 1993; Brown, 2006) ranging from 0.42 for provision of informal financial support to 0.89 for the father's levels of interest in the child. In addition, all parameter estimates were in the expected direction exhibiting a positive relationship with the latent construct of non-resident father involvement

Finally, following consideration of modification indices correlated errors were allowed between the frequency of overnight stays and frequency of outings. As noted previously, the presence of correlated error terms indicates that the covariance in the observed indicators is not only due to the underlying latent construct and random error but also due to some other shared cause in the observed indicators. Allowing for these correlated errors in the re-specified model appeared to be theoretically justified. Firstly, both of these variables are tapping into not simple frequency of contact but what actually occurs during contact. As such, it seems plausible that there may be a direct association between the two. Indeed, discussion of the available measures suggested that these variables may both tap into the nature and quality of the father-child relationship. Whilst the presence of correlated errors cannot be taken as illustrating that these variables are tapping into this aspect of involvement it does lend support to the assertion that these variables are capturing a common specific aspect of non-resident father involvement. It may be that both of these variables are perhaps indicative of greater commitment to the paternal role more generally. It would seem

reasonable to propose that fathers who have their children to stay more often would also spend more time engaging in leisure activities with their children. To propose that the reverse of this relationship may be true i.e. that fathers who engage in greater levels of recreational activities with their children would also have their children for overnight stays more frequently is perhaps a less robust assertion. As noted, it has been suggested that the involvement of non-resident fathers can become consigned to recreational and leisure activities. However, allowing for correlated errors between these two variables could perhaps be taken as indicating that engagement in the day to day hands-on child care associated with overnight stays and the 'lighter' side of parenting associated with recreational activities are interlinked. Greater non-resident father involvement results where fathers partake in both types of activity thereby engaging more fully in the paternal role.

Figure 6.1: Initial non-resident father involvement measurement model (statistically significant standardized parameter estimates shown)



Source: GUS sweep four
N=363 Sweep four survey weights applied.

6.3.2 Final non-resident father involvement measurement model

The final non-resident father involvement measurement model is presented in figure 6.2. The model was once again evaluated in terms of goodness-of-fit indices and the significance, size and direction of parameter estimates.

Firstly, consideration of goodness-of-fit indices indicated that the re-specified measurement model fits the data very well. Whilst the value of Chi-Square remained significant at $p<.05$, overall the other measures were supportive of acceptable model fit. The values of CFI (0.989), TLI (0.984) and WRMR (0.591) were indicative of very good fit whilst RMSEA (0.059, 90% confidence interval of 0.036-0.083) indicated acceptable model fit. Ultimately,

overall the goodness-of-fit values are indicative that the final hypothesised measurement model fits the data well.

Table 6.3: Final non-resident involvement measurement model

Indicator	Std. Est	S.E.	Est. / S.E.	R^2
Interest in child	0.89	0.03	32.50***	0.78
Frequency of purchase of toys, equipment etc.	0.76	0.03	26.29***	0.57
Frequency of outings/trips	0.75	0.03	27.06***	0.56
Quality of inter-parental relationship	0.73	0.03	22.89***	0.53
Frequency of direct contact	0.69	0.03	20.39***	0.48
Frequency of indirect contact	0.65	0.04	18.40***	0.42
Frequency of overnight stays	0.43	0.05	8.72***	0.18
Father contributes payments other than through child support agency	0.42	0.06	7.29***	0.18

Source: GUS sweep four. Statistical significance ***p<0.001. N=363
Sweep four survey weights applied.

Table 6.3 presents the results for the final non-resident father involvement measurement model. The parameter estimates will now be considered for each of the indicator variables in turn. In the first instance, it is important to note that all observed variables were statistically significant indicators of the underlying latent construct of non-resident father involvement. Indeed, all standardized factor loadings for the latent construct are statistically significant at p<.001.

In the second instance, with regard to the size of parameter estimates all standardized factor loadings were above the conventionally adopted minimum cut-off of 0.30 (Kim and Mueller, 1978; Kline, 1993; Brown, 2006) ranging from 0.42 – 0.89. Paternal level of interest in the child exhibited the strongest relationship with the underlying latent variable with a standardized factor loading of 0.89. According to the cut-off values suggested by Tabachnick and Fidell (2007) this can therefore be classified as an excellent indicator of the underlying latent construct. The frequency with which the non-resident father purchases toys, books or equipment for the child, takes the child on trips and outings and the mother's perception of the inter-parental relationship can also be deemed excellent indicators of the non-resident father involvement latent construct with respective standardised factor loadings of 0.76, 0.75 and 0.73. It is important to consider why these indicators might be the strongest indicators of

non-resident father involvement. As noted, attempts to conceptualise and measure non-resident father involvement have moved beyond simple frequency of contact to a more nuanced approach that attempts to capture a more detailed understanding of involvement. These results are supportive of such a move in suggesting that the most important aspects of non-resident father involvement are not simple frequency of contact measures but measures which try to capture the quality of the father-child relationship and the inter-parental relationship, two aspects of non-resident father involvement which the literature review identified as key to understanding the relationship between involvement and child well-being.

To now consider frequency of contact, whilst the strength of relationships between the indicator variables and the underlying latent construct were weaker than those just considered, both the direct and indirect contact indicators nonetheless exhibited strong associations with non-resident father involvement with standardised factor loadings of 0.69 and 0.65 respectively. These variables can therefore be deemed very good indicators of the latent construct non-resident father involvement (Tabachnick and Fidell, 2007). As noted, whilst there has been a move towards a more nuanced approach to the conceptualisation and measurement of non-resident father involvement, the literature review highlighted that researchers continue to regard frequency of contact as an important aspect of involvement. These results are supportive of such a stance. The strength of the relationship between the variables indicating frequency of direct and indirect contact and the latent construct of non-resident father involvement highlights the importance of continuing to consider frequency of contact when conceptualising and measuring involvement.

Finally, the standardised factor loading for variables indicating the frequency of overnight stays and whether the non-resident father makes informal financial contributions were considerably weaker at 0.43 and 0.42. Consequently both of these measures can be regarded as only fair indicators of the underlying latent construct. It is again important to consider the substantive meaning of these findings in an attempt to understand why these variables might be poorer indicators of non-resident father involvement. Firstly, in the case of frequency of overnight stays it may be that this is simply not a particularly prominent aspect of non-resident father involvement in the context of children's early years. Indeed, the descriptive statistics indicated that mothers of some 38 per cent of children with a non-resident father at sweep four reported that the child never had overnight stays with the non-resident father. As already alluded to, there are a range of potential reasons why overnight stays may not occur

with great frequency in children's early years. For example, the reluctance of young children to be apart from their mothers for prolonged periods of time or the reluctance of mothers to be similarly parted from their children. Alternatively, fathers may be reluctant to have young children for overnight stays perhaps due to a lack of confidence or indeed may be unable to do so due to lack personal circumstances such as inadequate housing. In any event, it may simply be that overnight stays are not a particularly prominent aspect of involvement in children's early years but may perhaps become so as children grow older.

With regard to provision of informal support, there are a number of potential explanations for the weak relationship between this indicator variable and the latent construct of non-resident father involvement. It may be that the measure itself might be inadequate. For example, maternal reports may underestimate levels of support. Alternatively, the somewhat weak relationship may signify that informal payments are simply not a particularly important indicator of non-resident father involvement. Consideration of the contrast between the weak association between frequency of informal payments and non-resident father involvement and the strong association between non-resident father involvement and the frequency with which the non-resident father purchases toys, books or equipment for the child is perhaps enlightening in this regard. Both measures capture provision of financial support, one in monetary form and the other in-kind. Perhaps the latter is a strong indicator of non-resident father involvement as it is suggestive of a father who takes a more 'hands-on' approach and is more aware of the needs of his child thereby indicating greater engagement with the paternal role. Alternatively, it may be that the father wishes to support the child directly rather than the mother and the wider household which could potentially be underpinned by elements of fathers wishing to have some form of control. In any event, the lack of a statistically significant relationship in the initial measurement model between non-resident father involvement and provision of formal payments coupled with the relatively weak association between informal payments and involvement should not be taken as suggesting that it is not important for non-resident fathers to financially support their children. At the very least the strength of the relationship between the provision of toys, books and other equipment and non-resident father involvement illustrates the importance of some form of material support as an aspect of involvement. It also offers support to the earlier observation that consideration of material support provided by non-resident fathers should not be limited to monetary support only.

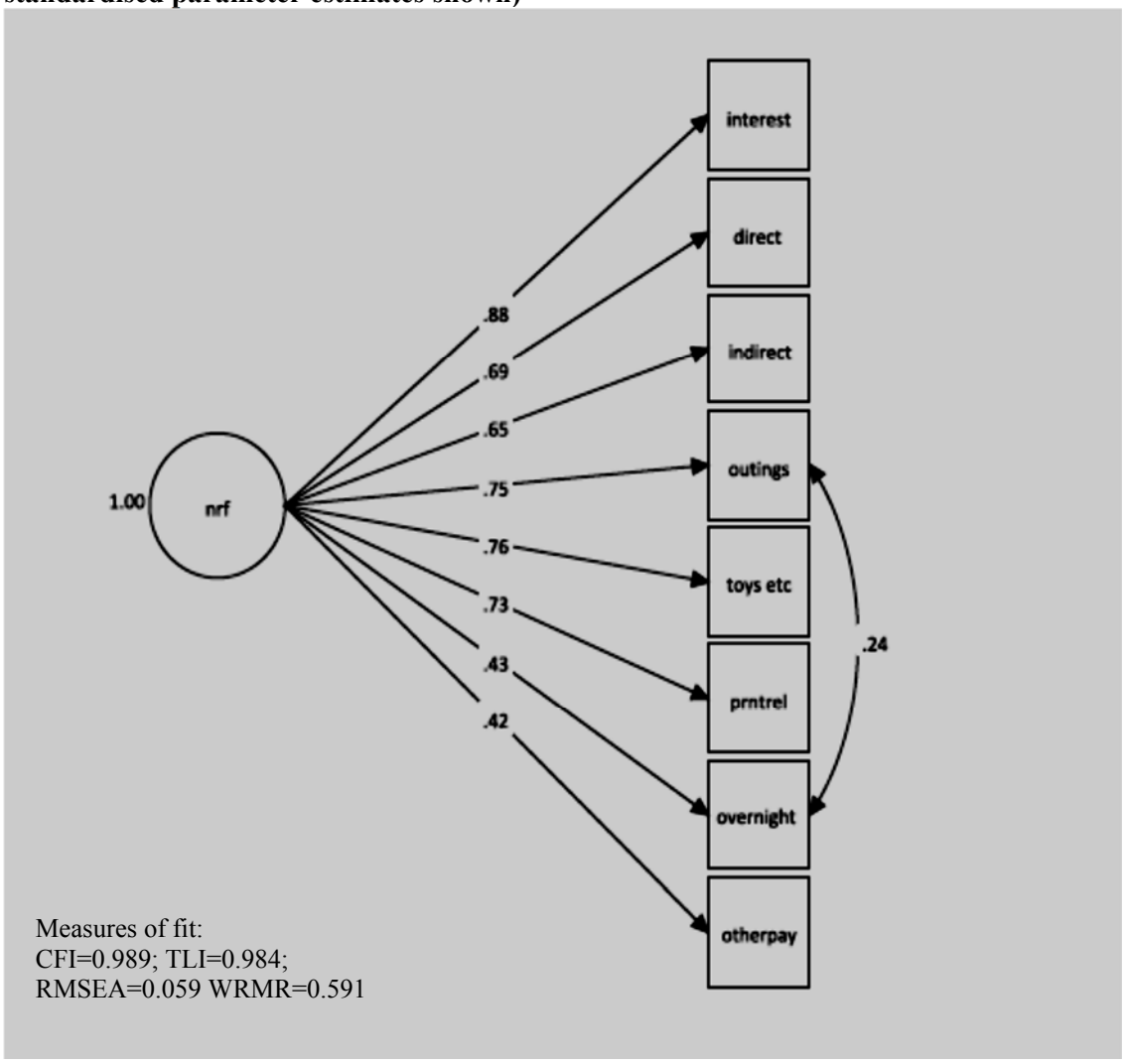
In the third instance, consideration of the direction of parameter estimates indicated that all were in the expected direction. Each of the indicator variables exhibited a positive relationship with the underlying latent construct. In other words, greater levels of paternal interest in the child are unsurprisingly associated with greater non-resident father involvement. Similarly, better maternal reports of the inter-parental relationship are associated with greater non-resident father involvement. This is an expected yet important finding serving to emphasise the importance of a co-operative relationship between resident mothers and non-resident fathers as an aspect of non-resident father involvement. In terms of levels and types of contact, increased frequency of both direct and indirect contact, overnight stays, outings / trips are all associated with greater levels of non-resident father involvement. Finally, as regards financial and material support provided by non-resident fathers, the provision of informal payments and the purchase of toys, books and other equipment are also both associated with greater non-resident father involvement.

Finally, consideration of the R^2 statistic reveals the level of paternal interest in the child to have a very high R^2 value of 0.78 indicating that the latent construct accounts for 78 per cent of the variation in levels of interest. The variables indicating the frequency with which the non-resident father purchases the child toys, books or other equipment, and takes the child on outings / trips, in addition to that indicating maternal perception of the inter-parental relationship also exhibited high values of R^2 at 0.57, 0.56 and 0.53 respectively indicating that the latent construct accounts for 57 per cent, 56 per cent and 53 per cent of the variation in the corresponding variables. The variables indicating frequency of direct and indirect contact also exhibited reasonably high R^2 values at 0.48 and 0.42 respectively signifying that the latent construct accounts for 48 per cent and 42 per cent of the variation in the corresponding variables. Finally, R^2 values for variables indicating the frequency of overnight stays and whether the non-resident father provided informal financial support were low at 0.18 for both, indicating that the latent construct account for only 18 per cent of the variation in each of these variables.

To summarise, the latent construct of non-resident father involvement is significantly and positively associated with frequency of direct contact, indirect contact, overnight stays, outings / trips, purchase of toys, books and equipment, provision of informal financial support, levels of paternal interest in the child and quality of the inter-parental relationship. Interpreted substantively, greater non-resident father involvement is associated with higher

levels of direct and indirect contact, more frequent overnight stays, more frequent outings / trips, higher levels of both in-kind support and informal monetary support, greater paternal interest in the child and a better inter-parental relationship.

Figure 6.2: Final non-resident father involvement measurement model (statistically significant standardised parameter estimates shown)



Source: GUS sweep four
N=363 Sweep four survey weights applied.

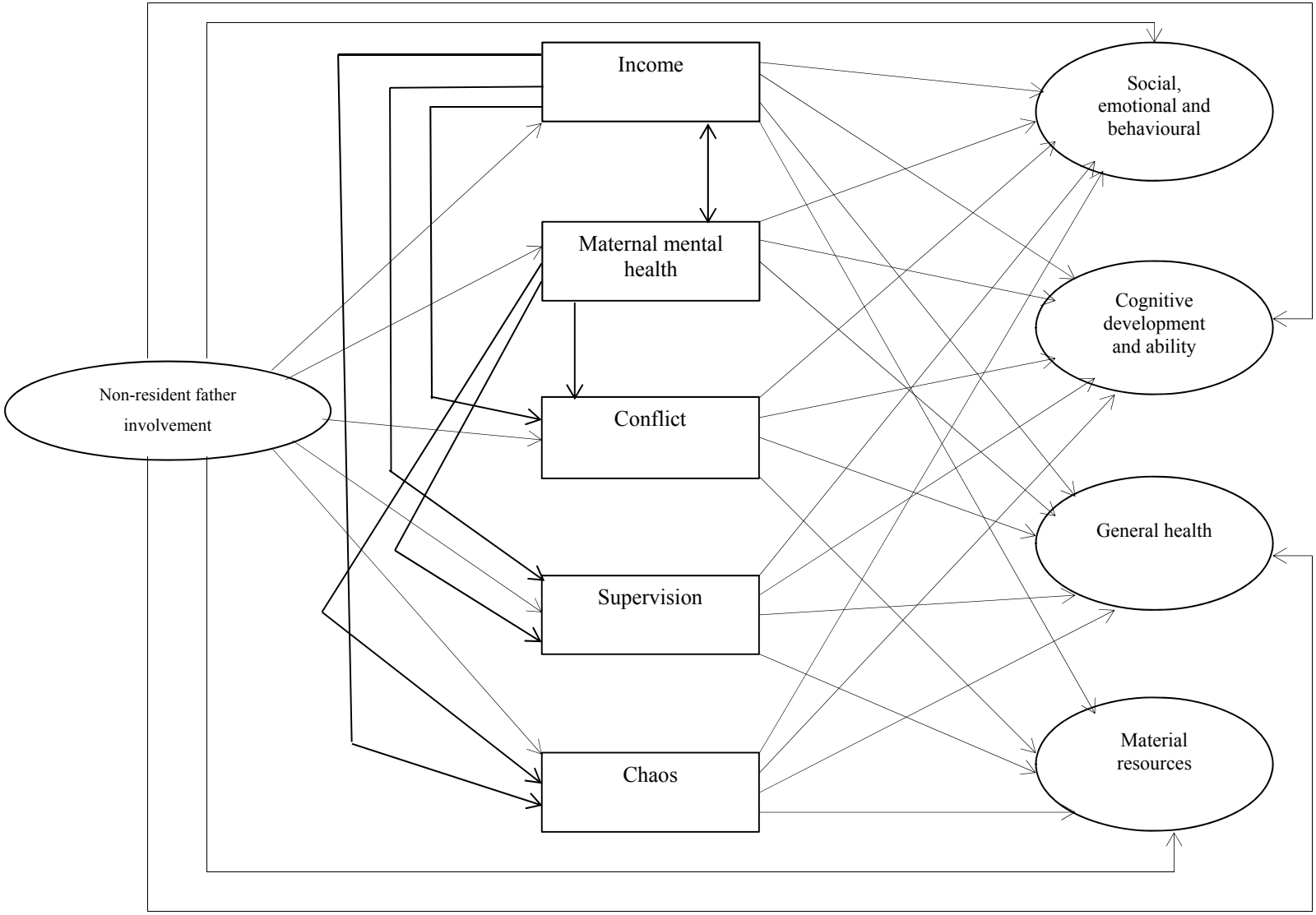
6.4 Full structural equation model

Following development of the non-resident father involvement measurement model the structural portion of the model was tested. Figure 6.3 illustrates the hypotheses regarding the potential relationships between non-resident father involvement, household income, maternal mental health, household chaos, mother-child conflict, parental supervision and child well-being tested in the model.

Firstly, the model sought to explore whether non-resident father involvement has a direct effect on child well-being depicted by the direct pathways between the latent construct of non-resident father involvement and each of the four domains of child well-being. Secondly, the model sought to explore whether non-resident father involvement is indirectly associated with enhanced child well-being via associations with the disadvantaged circumstances typically characterising non-resident father households. Accordingly, the model included indirect pathways between non-resident father involvement and the four domains of child well-being via the selected household circumstances, namely, household income, maternal mental health, levels of household chaos, levels of mother-child conflict and levels of parental supervision. Finally, a number of additional pathways were also included in the model in the form of direct pathways between firstly, household income and secondly, maternal mental health and each of household chaos, mother-child conflict and parental supervision.

Examination of model fit indices revealed an overall satisfactory picture of model fit. Whilst the value of Chi-Square was statistically significant at $p<.05$ and thus indicative of poor model fit, consideration of other fit indices revealed an overall satisfactory account of model fit. Firstly, the value of RMSEA 0.019 is indicative of very good model fit. Secondly, the values of CFI (0.932) and TLI (0.907), whilst below the more stringent cut-off value of >0.95 suggested by Hu and Bentler (1999) were above the conventionally adopted cut-off of 0.90 and therefore indicative of acceptable model fit. Finally the value of WRMR (0.949) indicated good model fit. On balance, consideration of goodness of fit indices indicated satisfactory model fit allowing interpretation of parameter estimates to proceed.

Figure 6.3: Hypothesised pathways from non-resident father involvement to child well-being



Note: Child well-being latent variables include controls for child's age and sex, maternal age at birth of child, maternal education, parity, , transition in family form, lone mother household.

Household income and maternal mental health include controls for maternal age at birth of child, maternal education, parity and transition in family form. Maternal mental health additionally controls for child's sex.

Conflict, chaos and supervision include controls for household income, maternal mental health, child's sex, maternal age at birth of child, maternal education, parity and transition in family form.

6.4.1 Paths from non-resident father involvement to child well-being

Pathways from non-resident father involvement to child well-being are considered in three stages. Firstly, the total effects between non-resident father involvement and child well-being are examined. Secondly, consideration is given to the direct effects between non-resident father involvement and child well-being. Thirdly, the indirect effects between non-resident father involvement and child well-being transmitted via household income, maternal mental health, household chaos, mother-child conflict and parental supervision are examined.

Before presenting the model results, a brief reminder will be given as to the calculation of total, direct and indirect effects. The total effect, for example, of non-resident father involvement on social, emotional and behavioural difficulties (-0.11) is the sum of its direct effect (-0.09) and its indirect effect (-0.03). The total indirect effect is the sum of all of the specific indirect effects between non-resident father involvement and children's social, emotional and behavioural difficulties. For example, the specific indirect effect transmitted via maternal mental health is -0.03. Summing all of the specific indirect effects provides the total indirect effect.

6.4.2 Total effects between non-resident father involvement and child well-being

The results presented in table 6.4 display standardized estimates for total effects between non-resident father involvement and child well-being. Examination of these results reveal there to be no statistically significant total effects between non-resident father involvement and child well-being. In other words, after controlling for a wide range of influences including household income, household chaos, parental supervision, mother-child conflict, maternal mental health, whether the mother had re-partnered, maternal age, maternal education, parity, child's age and sex and stability in family form, non-resident father involvement at age four was not significantly associated, either positively or negatively, with any of the four domains of child well-being at age five.

6.4.3 Direct effects between non-resident father involvement and child well-being

In terms of direct effects, the model sought to explore whether non-resident father involvement at age four was directly associated with child well-being at age five. Results presented in table 6.4 again indicate there to be no statistically significant direct effects between non-resident father involvement and child well-being. That is to say, after controlling for confounding influences, there were no statistically significant associations between non-resident father involvement and any of the four domains of child well-being.

These results are perhaps largely unsurprising when considered in the context of the findings presented in chapter five suggesting that the typically poorer child well-being in non-resident father households, in all domains except material resources, was not associated with paternal absence per se but rather with the disadvantaged circumstances which on average characterise such households, most notably household income. It might have been expected that if paternal absence is not directly related to child well-being in the domains of social, emotional and behavioural difficulties, cognitive development and ability and general health then neither would non-resident father involvement be directly associated with these domains of well-being. However, the lack of a significant association between non-resident father involvement and the domain of material resources is perhaps more surprising. More particularly, it might have been expected that modification indices may have indicated significant direct associations between each of the indicator variables capturing financial and material support and particular indicator variables in the domain of material resources. However, it is quite possible that the absence of such associations is an artefact of the measures employed. As noted the financial and material support indicators are not without their flaws for example, maternal reports may underestimate levels of support whilst the indicators for the domain of material resources are quite specific rather than being reflective of the overall economic circumstances of the household. The overall economic circumstances of the household are perhaps better captured by household income. However as will be seen, a statistically significant association between non-resident father involvement and household income was also absent.

6.4.4 Indirect effects between non-resident father involvement and child well-being

It has been seen that there are no statistically significant direct effects between non-resident father involvement and child well-being. What then of indirect effects? A key aim of this chapter was to explore whether non-resident father involvement could indirectly enhance child well-being via household income, maternal mental health, levels of household chaos, levels of mother-child conflict and levels of parental supervision.

The results presented in table 6.4 reveal no statistically significant total indirect effects and only three statistically significant specific indirect effects between non-resident father involvement and child well-being. Considering first the significant effects, the results reveal that non-resident father involvement is indirectly associated with enhanced child well-being in the domain of social, emotional and behavioural difficulties via maternal mental health. Figure 6.4 indicates there to be a significant positive direct association between non-resident father involvement and maternal mental health. That is to say, increased levels of involvement at sweep four were associated with better maternal mental health at sweep five, although the effect size was small at 0.16. Through this positive association with maternal mental health, non-resident father involvement was associated with fewer social, emotional and behavioural difficulties. Firstly, there was a significant negative pathway from non-resident father involvement to social, emotional and behavioural difficulties via maternal mental health. That is to say, greater levels of non-resident father involvement are associated with better maternal health which is associated with fewer social, emotional and behavioural difficulties. In terms of practical importance, effect size was very small (-0.03) suggesting the substantive significance of this relationship is not great.

Secondly, there was a significant negative pathway from non-resident father involvement via maternal mental health and levels of household chaos to levels of social, emotional and behavioural difficulties. That is to say, non-resident father involvement is associated with better maternal mental health which is associated with lower levels of household chaos which is in turn correlated with lesser social, emotional and behavioural difficulties.

Finally, there was a significant negative pathway from non-resident father involvement to levels of social, emotional and behavioural difficulties via maternal mental health and levels of conflict in the mother-child relationship. In other words, non-resident father involvement is associated with better maternal mental health which is related to lower levels of mother-child

conflict which is in turn associated with fewer social, emotional and behavioural difficulties. It is important to note however, that whilst both of these more complex pathways were statistically significant, in terms of practical significance effect sizes were again very small at -0.01 and -0.03 respectively.

The lack of significant indirect effects between non-resident father involvement and child well-being via household income, household chaos, mother-child conflict and parental supervision is itself an interesting finding. The absence of significant associations seems relatively straightforward to unpick in statistical terms at least. The model hypothesised that non-resident father involvement may enhance child well-being indirectly through its association with the selected household circumstances. In other words, it was expected that non-resident father involvement would be associated with better maternal health, increased household income, lower levels of household chaos and mother-child conflict and greater parental supervision thereby indirectly enhancing child well-being. However, as figure 6.4 demonstrates, with the exception of maternal mental health, non-resident father involvement exhibited no statistically significant direct associations with any of the above variables. That is to say, higher levels of non-resident father involvement at sweep four was not significantly associated with enhanced household income, increased levels of parental supervision or reduced levels of household chaos and mother-child conflict at sweep five. As such non-resident father involvement does not improve these circumstances to such an extent so as to significantly enhance child well-being indirectly via their associated relationships with child well-being. How might this be explained in practical terms? With regard to levels of household chaos, levels of mother-child conflict and levels of parental supervision it is perhaps reasonable that non-resident father involvement would not exhibit a direct association with these variables as they capture circumstances specific to the mother and the child and those living in the household. However, serving to highlight the complexity of the network of relationships at play, it has been seen that non-resident father involvement is significantly associated with reduced levels of household chaos and mother-child conflict indirectly via maternal mental health.

The lack of a statistically significant direct association between non-resident father involvement and household income is however, perhaps rather surprising. Certainly, in light of existing theory and evidence it might have been expected that modification indices would highlight a significant direct association between contribution of informal payments and

household income but no such association was indicated. There are several possible explanations for the lack of significant relationships between involvement and income. Firstly, it may be that the lack of significant associations between involvement and household income occurs because contributions are simply not high enough so as to significantly improve household income or indeed, because non-resident fathers are not contributing at all. Secondly, the lack of significant associations may be accounted for by limitations in the measures of financial support such as the failure to capture the amount of financial support provided or maternal underestimation of levels of support. Alternatively it may be accounted for by limitations in the measure of household income such as mothers failing to take into account monies received from non-resident fathers when computing total household income.

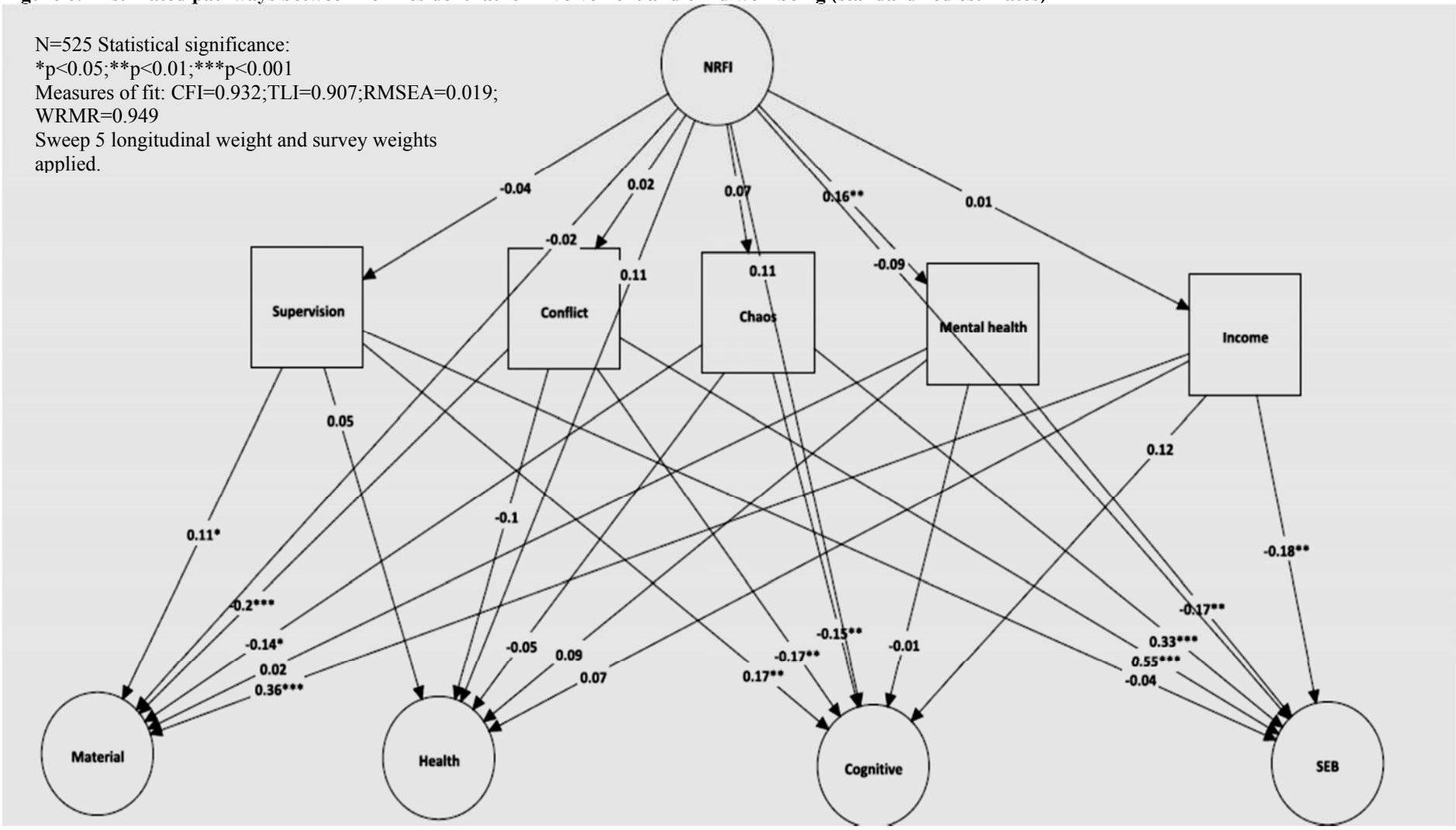
On the other hand, considered in light of the CFA findings highlighting the relatively low importance of the provision of monetary support as an aspect of non-resident father involvement, the lack of significant associations between involvement and household income ought perhaps to have been anticipated. If financial support is indeed not a particularly prominent aspect of involvement then it is perhaps unsurprising that the construct of involvement did not exhibit a significant positive association with household income or that modification indices did not highlight a significant association between informal support and household income.

Table 6.4: Direct, indirect and total effects of non-resident father involvement on child well-being

	Social, emotional and behavioural development		Cognitive development and ability		General health		Material resources	
	Std.Est	**St Es./S.E.**	**Std.Est**	**St Es./S.E.**	**Std.Est**	**St Es./S.E.**	**Std.Est**	**St Es./S.E.**
Total	-0.11	-1.55	0.10	1.33	0.13	1.74	-0.02	-0.22
Total direct	-0.09	-1.39	0.11	1.41	0.11	1.51	-0.02	-0.25
Total indirect	-0.03	-0.59	-0.01	-0.42	0.01	0.90	0.00	0.03
Via Income	-0.00	-0.13	0.00	0.13	0.00	0.13	0.00	0.13
Via maternal mental health	-0.03	-2.10*	-0.00	-0.20	0.01	1.29	0.00	0.27
Via chaos	0.02	1.24	-0.01	-1.11	-0.00	-0.66	-0.01	-1.07
Via conflict	0.01	0.35	-0.00	-0.34	-0.00	-0.32	-0.00	-0.34
Via parental supervision	0.00	0.59	-0.01	-0.78	-0.00	-0.69	-0.01	-0.82
Via income, chaos	0.00	-0.13	0.00	0.13	0.00	0.13	0.00	0.13
Via income, conflict	0.00	-0.13	0.00	0.13	0.00	0.13	0.00	0.13
Via income, supervision	0.00	-0.12	0.00	0.13	0.00	0.12	0.00	0.13
Via maternal mental health, chaos	-0.01	-2.14*	0.01	1.95	0.00	0.70	0.01	1.73
Via maternal mental health, conflict	-0.03	-2.18*	0.01	1.62	0.01	1.41	0.01	1.76
Via maternal mental health, supervision	0.00	-0.51	0.00	0.71	0.00	0.59	0.00	0.74

N=526 Statistical significance: *p<0.05
Estimates include control variables.
Sweep 5 longitudinal weight and survey weights applied.

Figure 6.4 Estimated pathways between non-resident father involvement and child well-being (standardized estimates)



6.5 Discussion of findings

Considered in the context of the existing literature, the analyses presented in this chapter raise a number of interesting findings. The literature review highlighted a shift in the conceptualisation and measurement of non-resident father involvement from simple frequency of contact and provision of financial support to additionally include consideration of the nature and quality of the father-child relationship and the inter-parental relationship thus capturing a more nuanced, detailed understanding of involvement. The current analysis sought to develop a comprehensive measure of non-resident father involvement capturing each of these four aspects of involvement. Overall, the results of the confirmatory factor analysis are supportive of a multi-dimensional approach to conceptualising and measuring non-resident father involvement. More specifically, the results support inclusion of the four aspects of involvement identified as key in the literature, namely the nature and quality of the father–child relationship, frequency of contact, financial support and the inter-parental relationship with indicators tapping into each of these four aspects featuring in the final measurement model.

Consideration of the strongest and weakest indicators of non-resident father involvement reveals notable findings. In the first instance, the CFA found the most important aspect of involvement to be paternal level of interest in the child. This indicator taps into the more qualitative aspects of non-resident father involvement such as the nature and quality of the father-child relationship. Conversely, the weakest indicator was the provision of informal financial support. Moreover, the indicator of formal financial support did not even feature in the final model as it was not a statistically significant indicator of non-resident father involvement. These findings appear to reflect a wider shift in conceptualisations and understandings of the role of the father evident in the literature. Whilst the father as breadwinner was the dominant view of fatherhood for much of the twentieth century and remains the traditional view of fatherhood today (Lamb, 1997), the role of the father is no longer limited to that of economic provider. The 1970s was the advent of major change in fatherhood discourses prompted largely by the women's movement and women's entry into the labour market. At the same time, talk of child welfare and a shift from

paternal rights to a focus on paternal duties and a recognition of mothers' rights altered views of the father / child relationship (Featherstone, 2009: 48). A new fatherhood ideal came to the fore in which fathers were highly involved in their children's lives and active participants in their upbringing (Segal, 2007). Whilst the new fatherhood ideal did not negate the need for fathers to continue to provide financially for their children, their investment in their children was no longer limited to a financial one; fathers were expected to spend time engaged with the nurturing and raising of their children, thereby investing emotionally in their children too. The CFA findings resonate with this shift and quite strongly suggest that a greater level of paternal interest which is likely indicative of a more hands-on engaged father is a more important aspect of involvement than the simple provision of money. To be sure, the role of economic provider is still an important aspect of father involvement, evidence of which can be seen in the CFA results. The second strongest indicator of non-resident father involvement was the frequency with which the non-resident father purchases toys, books or other equipment for the child. Although a measure of in-kind rather than monetary support, it serves to highlight the continued importance of the provision of some form of material / economic support as an aspect of father involvement. Moreover, this measure of in-kind support potentially captures the two faces of fatherhood, that of economic provider and that of involved father. It seems possible that a father who provides material support for his child in this manner is a hands-on father, aware of the day to day needs of his child and engaged with the paternal role. As such this variable arguably captures fulfilment of the roles of both economic provider and involved father. However, it is important to note it would seem that these roles are being fulfilled in relation to the child directly rather than the wider household circumstances.

In addition to exemplifying this shift in the conceptualisation of the role of the father, the CFA raised a number of other interesting findings. In the first instance, the frequency with which non-resident fathers took their children on outings / trips was found to be an excellent indicator of non-resident father involvement. Existing research has raised concerns that non-resident fathers find the father-child relationship becomes more peer-like with most time spent together partaking in

recreational activities thereby limiting opportunities to fully engage with the paternal role (Amato, 1987; Furstenberg et al, 1983; Stewart, 1999). However, the CFA results indicate that such activities are indeed an important aspect of involvement. Of course such activities are not constituent of non-resident father involvement but are simply one aspect of involvement. That partaking in leisure activities is an important aspect of non-resident father involvement should not be surprising given the fact that research on resident fathers has highlighted engagement in play and recreational activities to be a key aspect of father involvement (Lamb, 2010). Certainly, the results would suggest that we ought not to devalue the importance of recreational activities. Such involvement should not be seen as a lesser form of involvement but as one central aspect of non-resident father involvement.

In the second instance, the CFA results support the findings of recent research indicating the importance of considering the inter-parental relationship as an aspect of non-resident father involvement. The current analysis found maternal perception of the inter-parental relationship to be an excellent indicator of non-resident father involvement. This firmly corresponds with the current approach of conceptualising the inter-parental relationship as a distinct aspect of non-resident father involvement rather than simply a correlate of non-resident father involvement.

Finally, the CFA highlighted the continued importance of considering simple frequency of contact measures as an aspect of non-resident father involvement. This is again consistent with existing approaches to measuring and conceptualising non-resident father involvement. Whilst both existing research (Amato and Gilbreth, 1999; Adamsons and Johnson, 2013) and indeed the CFA results clearly indicate the most important aspects of involvement to be those relating to quality of involvement as opposed to quantity, researchers continue to evaluate and measure this element of non-resident fatherhood. Prior research suggests that frequency of contact is important to quality of involvement. For example, in the context of father-child relationship quality, frequency of contact has been shown to be greatly important (King and Sobolewski, 2006). The CFA indicated both frequency of direct and indirect contact to be very good indicators of non-resident involvement. As such

whilst it is not sufficient to consider only frequency of contact, such measures remain a core aspect of non-resident father involvement.

Beyond development of a comprehensive measure of non-resident father involvement, this chapter aimed to explore the relationship between non-resident father involvement and child well-being. Overall, it is important to emphasise that the results highlighted a notable absence of statistically significant associations between non-resident father involvement and child well-being. Considered in light of the findings in chapter five that paternal absence is not directly associated with child well-being but rather indirectly via household income and maternal mental health, this is perhaps unsurprising, It would seem that non-resident father involvement is likely to be of limited benefit to child well-being if the wider household circumstances are characterised by low income and poor maternal mental health.

It is important to note when discussing the current findings in the context of the existing literature that the current study takes a different approach in considering associations between involvement and well-being where contact occurs whilst other studies typically consider all children with a resident father including those where no contact occurs. As such this makes it somewhat more difficult to situate the findings in relation to existing studies.

Considering first children's social, emotional and behavioural well-being, the analysis showed non-resident father involvement at age four to be significantly associated with fewer social, emotional and behavioural difficulties at age five. This finding corresponds with existing empirical evidence. The meta-analyses of both Amato and Gilbreth (1999) and Adamsons and Johnson (2013) found non-resident father involvement to be positively associated with measures of children's social, emotional and behavioural well-being. It is important to stress however, that the current analysis indicated the associations between non-resident father involvement and social, emotional and behavioural well-being to be indirect, transmitted via maternal mental health. That is to say, non-resident father involvement was positively associated with maternal mental health which was in turn associated with fewer social, emotional and behavioural difficulties. Considering more complex

pathways, the results also indicated increased levels of involvement to be associated with fewer social, emotional and behavioural difficulties via firstly, maternal mental health and household chaos and secondly, maternal mental health and mother-child conflict. Consistent with the meta-analyses of Amato and Gilbreth (1999) and Adamsons and Johnson (2013) all effect sizes between non-resident father involvement and social, emotional and behavioural well-being were small.

The network of relationships at play in these significant associations resonates with the existing literature. Firstly, that non-resident father involvement is associated with better maternal health is consistent with both theory and prior research. Maternal mental health may potentially suffer in non-resident father households due to increased stress originating from a variety a sources including; relationship breakdown and the transition to non-resident fatherhood, inter-parental conflict, financial stress and the burden of being the sole provider of care for children. The measure of non-resident father involvement developed in the current analysis encompasses a number of aspects which could potentially alleviate stress thereby enhancing maternal mental health. For example, the provision of financial or material support may alleviate monetary worries, contact, outings and overnight stays may help share the burden of care and a positive inter-parental relationship may reduce levels of conflict. Ultimately, all of these factors combined may serve to alleviate some of the stress inherent in relationship breakdown and the experience of non-resident fatherhood. Indeed non-resident father involvement has been found to be associated with less depressive symptoms in resident mothers (Paulson et al. 2011). Secondly, that enhanced maternal health is associated with fewer social, emotional and behavioural difficulties is well established in the literature (Marryat and Martin, 2010; Pettersen and Albers, 2001; Wachs et al. 2009). Finally, the associations exhibited in the more complex pathways considered are also consistent with existing empirical evidence with maternal mental health having been found to be associated with the quality of parenting behaviours and thus child well-being (Beeber and Miles, 2003; Dix and Meunier, 2009).

In terms of cognitive development and ability the analysis showed no statistically significant associations with non-resident father involvement. Whilst previous

research in this regard has produced mixed findings, a number of studies have found positive associations between measures of non-resident father involvement and children's cognitive and academic outcomes. Most notably the meta-analyses of Amato and Gilbreth (1999) and Adamsons and Johnson (2013) found significant associations between non-resident father involvement and cognitive and academic outcomes although effect sizes in both studies were modest. As the majority of children included in both meta-analyses were older than the children in the current study it could be questioned whether the lack of significant associations in the current study was associated with the young age of the children and whether perhaps significant associations would become apparent as children grow older. However, both studies considered children's age as a moderator with Adamsons and Johnsons (2013) finding no significant differences in effect sizes for cognitive and academic outcomes and Amato and Gilbreth (1999) finding few significant associations in inconsistent directions across all domains of well-being studied. Alternatively, it is possible that the measure of non-resident father involvement in the current study fails to capture particular aspects of involvement which may be conducive to cognitive development and ability. For example, Amato and Gilbreth (1999) found authoritative parenting, as characterised by the provision of emotional support, engagement in discipline and the setting of boundaries and a communicative relationship, to be the aspect of non-resident father involvement most strongly associated with children's academic success. The construct of non-resident father involvement developed in the current research does not capture these aspects of involvement.

In the domain of general health the results revealed no statistically significant associations with non-resident father involvement. Whilst physical health is recognised as a key element of child well-being (Pollard and Lee, 2003) very few studies of non-resident fatherhood have included physical health as an aspect of well-being. Indeed, Adamsons and Johnson (2013) had sought to include physical well-being as an aspect of child well-being in their meta-analysis but were precluded from doing so as only two of the fifty-two selected studies included relevant outcomes. Inclusion of general physical health as an aspect of child well-being is therefore a

notable strength of the current research. Moreover, the findings support those of one of the few studies exploring the relationship between non-resident father involvement and children's physical health which found no significant associations over time between health and either payment of child support or levels of contact (Hofferth and Pinzon, 2011).

Similarly, non-resident father involvement also exhibited no statistically significant associations with material resources. It is somewhat difficult to situate this finding within existing studies. Very few studies in the field have explored and conceptualised material resources as an aspect of well-being in a similar manner to the current study. Certainly material resources did not feature as an aspect of well-being in the meta-analyses conducted by Amato and Gilbreth (1999) and Adamsons and Johnson (2013). It is often assumed that material resources are simply a reflection of household income and as such the typically poorer household income in non-resident father households will equate to poorer material resources. However, there is evidence to suggest that poorer household income is not necessarily associated with poorer material resources, perhaps because parents attempt to shield their children from the effects of poverty (Middleton et al 1997). It is also possible, that measures of household income and children's material situation do not overlap due to the lagged effect of income poverty on living standards, access to credit or financial support from family and friends (Treanor, 2014). As such, material resources are an important aspect of child well-being to be considered in its own right. Indeed the finding in chapter five that living in a non-resident father lone mother household was significantly associated with poorer material resources after controlling for household income supports consideration of material resources as an important aspect of child well-being. Consequently, whilst no significant associations with non-resident father involvement were found, inclusion of material resources as an aspect of child well-being is an important contribution of the current study.

It is important to emphasise that the current analysis examined the relationship between the single latent construct of non-resident father involvement and the four domains of child well-being; associations between particular aspects of involvement and well-being were not explicitly modelled. However, as noted, modification

indices did not highlight any significant associations between particular aspects of involvement and specific measures of child well-being. This is particularly noteworthy when considering the relationships between non-resident father involvement, household income and child well-being. In the first instance the results revealed no significant direct pathway between non-resident father involvement and household income whilst modification indices did not suggest inclusion of a direct pathway between informal payments and household income. This is somewhat surprising as it is very often simply assumed, perhaps understandably so, that the provision of financial support will enhance household income in non-resident father households. Of course, the absence of such associations in the current analysis may be due to limitations in the measures employed such as maternal reports underestimating levels of financial provision.

Moreover, the absence of modification indices suggesting inclusion of direct pathways between informal support or in-kind support and child well-being was also an interesting finding. Financial support has long been regarded as one of the most important aspects of non-resident father involvement for child well-being. Indeed Amato and Gilbreth (1999: 567-568) noted there to be almost 'unanimous' agreement amongst researchers regarding the importance of financial support for child well-being, with their own meta-analysis finding statistically significant findings between provision of financial support and children's academic success and externalizing problems. Interestingly however, comparable with the current research, the updated meta-analysis by Adamsons and Johnson (2013) published almost 15 years after that of Amato and Gilbreth (1999), found no significant associations between provision of financial support and child well-being. This may again be reflective of evolving views of the role of the father from that of economic provider to involved father.

Taken collectively the results raise a number of important implications for studies seeking to examine associations between non-resident father involvement and child well-being. Firstly, the absence of statistically significant direct pathways between involvement and well-being coupled with the complexity of pathways through which involvement was statistically significantly associated with well-being via maternal

mental health again lends support to the usefulness of the conceptual framework and an ecological approach to child well-being as a tool for understanding associations between involvement and well-being. Secondly, that the influence of non-resident father involvement appears to operate indirectly rather than directly suggests it may be helpful for researchers to conceptualise and measure the role of the non-resident father more broadly to include consideration of how fathers may support mothers and the wider household circumstances.

6.6 Conclusions

There a number of key conclusions to be drawn from this chapter. Firstly, consistent with existing literature, the analysis indicated non-resident father involvement is appropriately conceptualised and measured as a multi-dimensional construct encompassing four distinct aspects of involvement namely; frequency of contact, provision of financial support, the nature and quality of the father-child relationship and the inter-parental relationship. Consistent with shifts in conceptualisations of the role of the father, the most important aspects of involvement were those indicative of a more involved, hands-on father such as levels of paternal interest in the child and provision of in-kind support whilst the least important was the provision of informal monetary support indicative of the traditional paternal role of economic provider.

Secondly, overall the analysis suggests non-resident father involvement is not directly associated with child well-being. The analysis indicates that non-resident father involvement is indirectly associated with child well-being in a limited manner. Consistent with existing studies, the current analysis found modest associations between non-resident father involvement and fewer social, emotional and behavioural difficulties. The current study however found these associations to be transmitted indirectly via maternal mental health in the first instance, maternal mental health and levels of household chaos in the second instance and maternal mental health and levels of mother-child conflict in the third instance.

Thirdly, the current analysis found non-resident father involvement was not significantly associated with children's cognitive development and ability, general health or material resources, either directly or indirectly. The absence of a significant

association between involvement and the first of these domains of well-being is perhaps unexpected in light of the findings of Amato and Gilbreth (1999) and Adamsons and Johnson (2013) whilst analysis of the latter two domains constitutes an important contribution to development of the field as they have rarely been studied as aspects of well-being in studies of non-resident fatherhood. It would seem that non-resident father involvement will be of limited benefit to child well-being if the child's wider household circumstances are characterised by low income and poor maternal mental health.

Finally, whilst this chapter has addressed its key aims of developing a construct of non-resident father involvement and exploring the associations between involvement and child well-being, there are a number of ways in which the current analysis could be improved and built upon in future research. Firstly, whilst the current analysis was based upon an adequate sample size power estimates are not well established for structural equation modelling. As such, it may be that a larger sample with greater power may have yielded statistically significant associations between non-resident father involvement and child well-being not found in the current analysis.

Secondly, as with most secondary analysis, the analyses would have benefited from measures designed specifically for the current research. More particularly, development of the construct of non-resident father involvement was limited by the measures collected. For example, the analysis would have benefited from consideration of the amount of financial support provided. Moreover, the construct of non-resident father involvement was limited by sole reliance on maternal reports and the research would undoubtedly have benefited from data collection with both non-resident fathers and perhaps children too.

Thirdly, the analysis is based upon a 'father effects' model which posits that non-resident father involvement influences child well-being. Of course the opposite may be true; characteristics of children may influence levels of non-resident father involvement, a so-called 'child effects' model. Indeed in their analysis of child physical health and non-resident father involvement, Hofferth and Pinzon (2011) tested both 'father effects' and 'child effects', finding significant 'child effects' but

no significant ‘father effects’. Analysis of a ‘child effects’ model using GUS would be an interesting avenue for future research to explore.

Fourthly, as previously discussed, due to the manner in which data about non-resident father involvement was collected, the current analysis considered only those cases where there was some form of contact. It important therefore to build upon this analysis to include consideration of those cases where contact does not occur.

Finally, as with much research in the field of non-resident fatherhood studies, the analysis focuses on a particular age and stage of childhood providing us with only a snapshot in time. Whilst there were few significant associations between non-resident father involvement and child well-being indicated by the current analysis it is possible that effects of involvement may be cumulative thus becoming apparent as children move into middle childhood and beyond.

Chapter 7: Correlates of contact and non-resident father involvement

7.1 Introduction

Given the findings in chapter five and six suggesting that paternal absence is not inherently detrimental to child well-being and that non-resident father involvement exhibits only limited indirect associations with enhanced child well-being it might seem perplexing as to why the thesis now moves to consider the correlates of contact and involvement. Considered collectively, the findings in chapters five and six strongly suggest that child well-being in non-resident father households can potentially be enhanced by improving the poorer household circumstances typically characterising non-resident father households, most notably household income and maternal mental health. However, it is possible that based on a broader understanding of the role of the non-resident father emphasising the potential importance of involvement for the child's wider household circumstances rather than focussing primarily on any potential inherent benefits of the father child relationship, involvement could potentially serve to improve the wider household circumstances of non-resident father household thereby indirectly enhancing child well-being. This chapter explores the correlates of contact and involvement based on this premise, that non-resident father involvement could potentially be used as a vehicle to improve the wider household circumstances of non-resident father households. The aims of this chapter are two-fold; first to identify the circumstances and characteristics associated with whether contact occurs at all and secondly, where contact occurs, to identify those circumstances and characteristics associated with greater or lesser levels of non-resident father involvement.

In doing so, this chapter addresses the fifth research question detailed in chapter two:

What circumstances and characteristics are associated with the maintenance of contact and levels of non-resident father involvement in the early years?

As detailed in chapter four, there are two strands to this analysis. Firstly, a logistic regression model is used to predict the likelihood of contact occurring and secondly,

a MIMIC model is used to explore levels of involvement amongst those non-resident fathers who are in contact. The analysis uses two dependent variables. In the first model, the dependent variable is a binary variable indicating whether there was current contact between the non-resident father and child at sweep four. In the second model, the dependent variable is the latent construct of non-resident father involvement developed in chapter six, which captures non-resident father involvement through eight indicator variables namely, payment of informal support, provision of in-kind support, frequency of direct contact, frequency of indirect contact, frequency of overnight stays, frequency of outings / trips, level of paternal interest in the child and the quality of the inter-parental relationship.

7.2 Bivariate statistics

Before conducting multivariate analyses, consideration will be given to the bivariate relationship between the selected correlates and the maintenance of contact. Similar consideration cannot easily be given to how the selected correlates might relate to levels of involvement amongst those non-resident fathers who have maintained contact given that involvement is conceptualised as a latent construct consisting of eight indicator variables. Whilst it would be possible to consider how the selected correlates might relate to each of the indicators separately a key aim of the current research concerned the creation of a latent construct of involvement. As such there seems little to be gained from consideration of the descriptive statistics for each indicator. It is therefore important to bear in mind when considering the bivariate associations that the correlates which appear to potentially influence the maintenance of contact may not necessarily influence levels of involvement amongst cases where contact occurs. Equally, circumstances which appear unimportant for the maintenance of contact may be influential in terms of levels of involvement.

7.2.1 Child characteristics and background circumstances

In terms of child characteristics, there was no significant association between the child's sex and the maintenance of contact. Unexpectedly however, there was a significant difference in the mean age in months between those cases where contact

occurs and those where it does not. The mean age was slightly higher where contact occurred suggesting contact might be more likely with older children.

The results suggest background circumstances may be important correlates of contact with each of the selected measures exhibiting significant associations with whether or not contact is maintained. Considering first the circumstances surrounding the pregnancy, table 7.1 indicates that the vast majority of pregnancies in all non-resident father households were not jointly planned with only 27 per cent reported to be planned by both parties. Considering those who were in contact, this figure is somewhat higher with one-third of pregnancies having been jointly planned compared with only 13 per cent where there was no current contact at sweep four suggesting whether the pregnancy was jointly planned may be an important correlate of contact.

Despite the majority of pregnancies being unplanned, most mothers perceived fathers as being fairly or very happy on learning of the pregnancy. Notably, where contact occurred mothers were more likely to have perceived the father as being happy compared to those cases where there was no current contact, almost two-thirds compared with slightly under half, suggesting paternal happiness about the pregnancy may be associated with the maintenance of contact.

Finally, the results reveal that very few fathers had attended any antenatal classes or groups, only some 16 per cent. Levels of attendance were however higher amongst those fathers who had maintained contact than those who had not, 18 per cent compared with 11 per cent. Ultimately, in terms of the circumstances surrounding the pregnancy, the descriptive statistics suggest that contact was more likely to occur where the pregnancy was jointly planned, where the mother perceived the father as being happy about the pregnancy and where the father had attended antenatal classes.

Table 7.1: Descriptive statistics of correlates of contact and non-resident father involvement

	Mean or percentage in category		
Variable *(reference category in italics)*	**All households with a non-resident father[a]**	**Non-resident father in contact[b]**	**Non-resident father not in contact[c]**
Child characteristics and background circumstances			
Child is female	46.4	47.2	45.2
Child's age in months*	46.21	46.24	46.15
Father never resident with child***	71.4	65.2	85.7
Parents never married***	83.1	79.2	95.0
Whether pregnancy was jointly planned*** *No* Yes 	 73.1 26.9 N=803	 67.0 33.0 N=526	 87.1 12.9
Father's feelings about the pregnancy*** *Very or fairly unhappy* Neither happy nor unhappy Fairly or very happy 	 19.4 60.0 N=750	 20.4 64.1 N=511	 17.9 49.4 N=225
Father's attendance at antenatal classes** *Attended no classes* Attended some or all classes 	 84.3 15.7 N=798	 81.9 18.1 N=525	 89.3 10.7 N=258
Socio-demographic characteristics			
Maternal age at birth of child*** *Under 20* 20-29 30-39 40+	 23.2 51.5 23.7 1.6	 20.3 52.8 25.4 1.5	 30.3 50.3 17.6 1.8
Maternal education			

Degree level or equivalent	10.1	11.5	6.4
Vocational qualification below degree level	41.3	39.7	44.1
Higher Grade	6.2	5.7	7.2
Standard Grade	25.4	27.6	22.6
No qualifications	17.0	15.5	19.7
	N=799	N=521	
Maternal ethnicity			
Non-white	0.9	0.6	1.4
White	99.1	99.4	98.6
Maternal employment *			
Not in employment	49.7	46.9	55.2
In employment	50.3	53.1	44.8
Equivalised household income	12599.204	12883.159	11935.228
Situational factors			
Family status***			
Lone mother	86.5	91.2	77.8
Re-partnered mother	13.5	8.8	22.2
Other siblings in household			
No	47.5	45.9	50.7
Yes	52.5	54.1	49.3
Travel time between father and child			
One hour or more		10.8	
31-59 minutes		8.5	
30 minutes or less		80.7	

Source: GUS sweeps 1-4 Significance levels: *p<.05 **p<.01 ***p<.001
Sweep four longitudinal and survey weights applied.
[a]Unless otherwise stated all N=804
[b]Unless otherwise stated all N=527
[c]Unless otherwise stated all N=259

Considering now the relationship history of the parents, the results reveal that for those households with a non-resident father at sweep four, the overwhelming majority of parents, some 85 per cent, had never been married. This proportion was slightly lower amongst those in contact at 79 per cent, and considerably higher amongst those not in contact at 95 per cent, suggesting that contact is more likely to occur where parents have been previously married. Of course unmarried parenthood is not synonymous with non-resident fatherhood and levels of fathers who had never lived with their child were lower than those who had never been married to the child's mother. Nonetheless, more than two-thirds of children in non-resident father households at sweep four had never lived with their father. Again this proportion was slightly lower amongst those children currently in contact with their non-resident father at just under two-thirds and considerably higher for those children not in contact at 86 per cent suggesting that contact is more likely to be maintained where fathers have previously resided with their children.

7.2.2 Socio-demographic characteristics

Considering now socio-demographic characteristics, the results suggest that the maintenance of contact may be influenced by some of the selected variables. Both maternal age at the birth of the child and maternal employment exhibited significant associations with whether or not contact occurred. In terms of maternal age at the birth of the child, nearly one-quarter of children in non-resident father households were born to mothers under the age of twenty. For those who were in contact this proportion was slightly lower at 20 per cent but was somewhat higher at 30 per cent where contact did not occur suggesting that children of younger mothers are less likely to be in contact with their non-resident father.

In terms of maternal employment, whilst consideration of all non-resident father households reveals approximately equal proportions of those in employment and those not in employment, when comparing those cases in contact and those not, the results suggest the former are more likely to be in employment, 53 per cent compared with 45 per cent. That contact is more likely to take place where the mother is employed offers some support to hypothesis that working mothers may be more

reliant on non-resident fathers for childcare than their non-working contemporaries. Of course any association between maternal employment and the maintenance of contact is likely bound up with other socio-demographic characteristics. For example, older mothers with higher levels of education may be more likely to work.

Maternal ethnicity and maternal education did not however exhibit significant associations with the maintenance of contact, whilst in terms of household income, there was no significant difference in the mean income across those cases where contact occurred and those where it did not.

7.2.3 Situational factors

Considering lastly situational factors, the results indicate a significant association between maternal relationship status and whether or not contact occurs. Table 7.1 indicates some 87 per cent of mothers in non-resident father households are lone parents, however where the mother has re-partnered this seems to have notable implications for whether or not contact is maintained. Where contact occurred households were headed by a lone mother in 91 per cent of cases compared with 78 per cent where contact did not occur suggesting that maternal re-partnering may considerably reduce the likelihood of contact occurring. Of course, as this analysis provides a picture of contact at sweep four only it cannot be determined whether non-resident fathers were in contact prior to the mother re-partnering and ceased to maintain contact following this event or whether contact ceased before the mother re-partnered or indeed was never maintained at all. Finally, the presence of siblings in the household did not exhibit a significant association with the maintenance of contact.

Consideration of the bivariate statistics has provided an insight into the characteristics and circumstances of non-resident father households and how they may be associated with the maintenance of contact between non-resident fathers and their children. Multivariate analyses will now be conducted to explore in-depth their associations with the maintenance of contact and levels of non-resident father involvement.

7.3 Logistic regression model predicting contact with non-resident father

The results for the logistic regression model predicting contact at sweep four are presented in table 7.2. A full description of the form and interpretation of this model can be found in the methods discussion in chapter four. The selected variables were entered in three progressively complex models. Model one included only child characteristics and background circumstances. Model two added socio-demographic characteristics. Model three added situational factors. Modelling the data in this manner allows comparison of results across models to assess the robustness of coefficients and offers some insight into whether particular variables may mediate the influence of others. Before considering interpretation of particular coefficients, it is important to note that the results in table 7.2 suggest that overall the final model did not provide a particularly full account of the maintenance of contact between non-resident fathers and their children. The Pseudo-R^2 value for the final model (0.21) suggests that there are factors influencing the maintenance of contact which are not fully captured by the model. This is not particularly surprising as due to a lack of data, a number of potentially important explanatory variables, such as paternal socio-demographic characteristics could not be included in analyses. A number of the selected predictor variables were however found to be statistically significant predictors of contact offering interesting insights into the circumstances and characteristics associated with the maintenance of contact.

Table 7.2: Logistic regression model predicting whether contact occurs

	Odds Ratio		
Variable *(reference category in italics)*	**Model 1**	**Model 2**	**Model 3**
Child characteristics and background			
Child is female	1.09	1.12	1.19
Child's age in months	1.38	1.43	1.40
Father never resident with child	0.62	0.65	0.69
Parents never married	0.35*	0.38*	0.40*
Whether pregnancy was planned			
Baby not planned or planned only by mother			
Baby was jointly planned	1.86*	1.96*	1.98*
Father's feelings about the pregnancy			
Very or fairly unhappy			
Neither happy nor unhappy	2.06*	1.67**	2.17**
Fairly or very happy	1.59	2.34	1.79
Father's attendance at antenatal classes			
Attended no classes			
Attended some or all classes	1.35	1.60	1.63
Socio-demographic characteristics			
Maternal age at birth of child			
Under 20			
20-29		1.43	1.31
30-39		1.61	1.28
40+		2.9	1.88
Maternal education			
Degree level or equivalent			
Vocational qualification below degree level		0.61	0.58
Higher Grade		0.7	0.64
Standard Grade		1.03	0.98
No qualifications		0.61	0.62
Maternal ethnicity			
Non-white			
White		3.75	4.09
Maternal employment			
Not in employment			
In employment		1.12	1.24
Equivalised household income		1.00	1.00
Situational factors			
Family status			
Lone mother			
Re-partnered mother			0.28***
Other siblings in household			1.09
N	748	731	731
Pseudo R^2 Nagelkerke	0.130	0.165	0.205
% correctly classified	70.1	72.1	73.6

Source: GUS sweeps 1-4. Sweep 4 longitudinal weight and survey weights applied.
Significance levels: *p<.05 **p<.01 ***p<.001

Considering first child characteristics, as was expected, neither age at the time of interview nor sex were statistically significantly associated with whether there was contact between the child and non-resident father at sweep four.

Particular background circumstances however appear to be important as to whether non-resident fathers are in contact with their children. Firstly, in terms of relationship status, whether the parents were ever married exhibited a statistically significant association with contact even after controlling for socio-demographic characteristics and situational constraints, with non-resident fathers who were never married to the child's mother less likely to be in contact than those who have been married. Secondly, whether the pregnancy was jointly planned also exhibited a significant positive association with the likelihood of contact occurring across the three models. Where the baby had been jointly planned, the odds of contact occurring were almost two times higher than if the baby had not been jointly planned. Thirdly, mothers' perceptions of fathers' feelings on first learning of the pregnancy also exhibited a statistically significant association with whether contact occurred. However, this was only a significant consideration for those fathers reported to be 'neither happy nor unhappy' compared to those reported to be 'fairly or very unhappy'. Surprisingly, those fathers who were reported to be 'fairly or very happy' about the pregnancy were *not* significantly more likely to be in contact than those in the reference group. Finally, in terms of background characteristics, whether the father had ever previously resided with the child and attendance at ante-natal classes were not found to be statistically significant predictors of whether contact occurred.

Considering socio-demographic characteristics, whilst the descriptive statistics suggested a number of notable differences between those cases where contact occurred and those where there was no contact, table 6.2 reveals there to be no statistically significant associations between any of the selected characteristics and the likelihood of contact occurring.

Considering finally situational factors, table 6.2 indicates there to be no significant association between the presence of siblings in the household and the likelihood of contact occurring but suggests maternal relationship status to be an important

correlate of contact. In terms of maternal relationship status, the results indicate that children of re-partnered mothers are significantly less likely to be in contact with their non-resident father than their contemporaries in lone mother households.

7.4 MIMIC model exploring levels of non-resident father involvement

The foregoing analysis considered the circumstances associated with the likelihood of contact occurring. Of course where contact is maintained, levels of involvement will vary. A MIMIC model was conducted exploring the circumstances associated with varying levels of non-resident father involvement amongst those fathers who have maintained contact with their children. Discussion of the form and interpretation of this type of model can be found in chapter four. As noted, the dependent variable in this analysis is the latent construct of non-resident father involvement developed in chapter seven. As with the logistic regression model predicting levels of contact, the selected variables were entered in three progressively complex models. Model one included only child characteristics and background circumstances. Model two added socio-demographic characteristics. Model three added situational factors. Table 7.3 indicates there to be a fourth model. Model four arose following consideration of modification indices which suggested the inclusion of a direct pathway between geographical distance and frequency of direct contact. Greater consideration will be given to this in due course.

Before turning attention to the relationship between levels of involvement and the selected correlates, model fit will be considered. Table 7.3 indicates the various models all exhibit very good model fit. Firstly, with the exception of model one, the values for Chi-square were not statistically significant indicating good model fit. Secondly, the values for CFI and TLI were above the stringent cut-off value of >0.95 suggested by Hu and Bentler (1999) for all four models indicative of very good model fit. Thirdly, the values for RMSEA were below 0.03 for each of the four models again indicative of very good model fit. Finally, the values of WRMR were below one for each of the four models further indicating the models to fit the data well. Model four exhibits the best fit statistics of the four models suggesting the

inclusion of all selected correlates in addition to the inclusion of specified pathway based upon modification indices provides the most informative account of levels of involvement. Interestingly, whilst still satisfying the requirements for very good model fit, model three exhibited the poorest fit statistics. This appears to have been due to inclusion of the pathway between geographical distance and the latent construct of non-resident father involvement. Model three modification indices suggested inclusion of a direct pathway between geographical distance and frequency of direct contact. As will be discussed, inclusion of this pathway made substantive sense in addition to being justified on a statistical basis. It is important to note that as each of the models exhibited very good model fit, estimates from each model and not simply the final model can be reliably interpreted.

Attention now turns to associations between levels of involvement and each of the predictor variables. In the first instance, with regard to child characteristics and background information table 7.3 indicates there to be notable differences in terms of the characteristics which are important for whether contact occurs at all and those important to levels of involvement. Considering first background circumstances, the results suggest none of the selected measures were statistically significantly associated with levels of involvement. That is to say, despite a number of these circumstances being statistically significant associated with the maintenance of contact, namely, whether the parents were ever married, whether the pregnancy was jointly planned and maternal perception of the father's happiness on first learning of the pregnancy were not statistically significantly associated with levels of involvement.

In terms of child characteristics, as with whether contact occurs at all, the child's sex is not statistically significantly associated with levels of involvement. Interestingly and indeed unexpectedly however, the child's age was statistically significantly associated with levels of involvement. More specifically, being older was associated with increased levels of involvement, an association which remained statistically significant across the various models. Moreover, the strength of the association, whilst only weak, ranging from 0.11- 0.12 also remains fairly constant across the various models.

In the second instance, with regard to socio-demographic characteristics, as with whether contact occurred at all, the results in table 7.3 reveal none of the selected variables to be statistically significantly associated with levels of involvement.

In the third instance, as with whether contact occurs at all, situational factors appear to play a key role in levels of non-resident father involvement. In terms of the child's current family composition, levels of involvement were again statistically significantly associated with maternal relationship status but not with the presence of siblings in the household. Table 7.3 indicates maternal relationship status to be an important correlate of levels of involvement, with children in re-partnered mother households experiencing statistically significantly lower levels of non-resident father involvement than their contemporaries in lone mother households. Moreover, in addition to being a statistically significant correlate of contact, the results reveal maternal relationship status to be an issue of substantive importance too with a standardized effect size of -0.43. That is to say, that after controlling for a wide range of correlates including child characteristics, background circumstances, socio-demographic characteristics and other situational factors, whether the mother has re-partnered is an important correlate of levels of involvement.

Finally, the results demonstrate geographical distance between father and child as captured by travel time between the two residencies to be an important correlate of levels of involvement or more specifically, of frequency of direct contact. Model three indicated significantly higher levels of involvement amongst those fathers living thirty minutes or less from their children compared to those fathers living more than one hour away. Moreover, the results indicated this association to be of considerable practical important too with a large standardized effect size of 0.63. There were no statistically significant differences in levels of involvement however between those fathers living between 31-59 minutes from their children compared to those living over an hour away. The association between travel time and levels of involvement is unsurprising. It seems almost unquestionable that levels of involvement may be considerably affected by travel time due to a whole host of practicalities such as availability of transport and resources of both time and money.

However, reflecting upon the specific indicators of involvement, it might be expected that travel time would impact most notably upon levels of direct contact compared with the other measures. Modification indices provided in model three confirmed this expectation, highlighting a statistically significant direct association between levels of direct contact and travel times of thirty minutes or less. Upon inclusion of this direct pathway in model four, the results indicate that whilst a statistically significant predictor of frequency of direct contact, geographical distance is no longer a statistically significant predictor of overall levels of involvement. This is not surprising, for as noted, the travel time between non-resident fathers and their children is clearly of greatest consequence for direct contact as opposed to the other measures of involvement such as indirect contact or financial support. Of course it is important to bear in mind that those fathers who live further away from their children might be those are less likely to be 'involved' fathers. Therefore it is not necessarily the case that greater travel times are causing lower levels of involvement. Ultimately, the results of the MIMIC model suggest situational factors to be important correlates of levels of involvement amongst those non-resident fathers who maintain contact with their children.

Table 7.3: MIMIC model exploring levels of non-resident father involvement

	Model 1		**Model 2**		**Model 3**		**Model 4**	
Variable *(reference category in italics)*	**Std.Est**	**Std.Est/SE**	**Std.Est**	**Std.Est/SE**	**Std.Est**	**Std.Est/SE**	**Std.Est**	**Std.Est/SE**
Child and background characteristics								
Child is female	0.04	0.27	0.07	0.50	0.08	0.60	0.08	0.60
Child's age in months	0.11*	2.27	0.12*	2.46	0.11*	2.15	0.11*	2.15
Father never resident with child	-0.02	-0.15	-0.03	-0.19	-0.01	-0.08	-0.01	-0.09
Parents never married	0.24	1.7	0.26	1.7	0.24	1.60	0.25	1.6
Whether pregnancy was planned *(Baby unplanned or planned by mother)* Baby was jointly planned	 0.04	 0.28	 -0.00	 -0.01	 -0.02	 -0.13	 -0.02	 -0.13
Father's feelings about the pregnancy *(Very or fairly unhappy)* Neither happy nor sad Fairly or very happy	 -0.10 -0.07	 -0.47 -0.42	 -0.11 -0.09	 -0.52 -0.5	 -0.13 -0.08	 -0.61 -0.49	 -0.14 -0.09	 -0.61 -0.49
Father's attendance at antenatal classes *(Attended no classes)* Attended some or all classes	 0.04	 0.25	 0.07	 0.50	 -0.02	 -0.10	 -0.02	 -0.1
Socio-demographic characteristics								
Maternal age at birth of child *(Under 20)* 20-29 30-39 40+			 0.09 0.15 0.33	 0.58 0.77 0.73	 0.14 0.13 0.59	 0.83 0.62 1.29	 0.14 0.14 0.60	 0.83 0.63 1.29
Maternal education *(Degree level)* Vocational qualification below degree Higher Grade Standard Grade			 -0.18 -0.14 0.02	 -0.93 -0.42 0.08	 -0.18 -0.16 -0.03	 -0.88 -0.48 -0.13	 -0.19 -0.16 -0.03	 -0.88 -0.49 -0.13

No qualifications			-0.13	-0.63	-0.13	-0.66	-0.14	-0.67
Maternal ethnicity (*Non-white)* White			 -0.25	 -0.37	 -0.29	 -0.40	 -0.3	 -0.40
Mother is in employment			0.04	0.32	0.07	0.57	0.07	0.13
Equivalised household income			-0.05	-0.68	-0.03	-0.39	-0.03	-0.39
Situational constraints								
Family status (*Lone mother)* Re-partnered mother					 -0.42*	 -2.39	 -0.43*	 -2.39
Other siblings in household					-0.06	-0.49	-0.06	-0.49
Travel time between father and child *(One hour or more)* Between 31-59 minutes 30 minutes or less					 0.02 0.63***	 0.09 3.56	 0.02 0.32	 0.08 1.69
Direct contact ON 30 minutes or less							1.09***	12.10
N	401		398		394		394	
Chi Square	Value = 98.481 Df = 75 P-Value = 0.0359		Value = 166.756 Df = 145 P-Value = 0.1043		Value = 223.768 Df = 173 P-Value = 0.056		Value = 192.714 Df = 172 P-value = 0.1334	
CFI	0.987		0.986		0.968		0.987	
TLI	0.984		0.983		0.962		0.984	
RMSEA	0.028		0.019		0.027		0.017	
WRMR	0.745		0.756		0.868		0.756	

Source: GUS sweeps 1-4 Sweep 4 longitudinal weight and survey weights applied.
Significance levels: *p<.05 **p<.01 ***p<.001

7.5 Discussion of findings

This chapter set out to identify the circumstances and characteristics associated with the maintenance of contact and levels of non-resident father involvement on the premise that increased levels of contact and involvement could be a potential means of improving the typically poorer household circumstances of non-resident father households, in particular lone mother households. The analyses gave rise to a number of interesting findings. Discussion of these findings is structured around the categories of correlate considered in analyses namely, background circumstances and child characteristics, socio-demographic characteristics and situational factors.

Background circumstances and child characteristics

Firstly, the results suggest particular background circumstances relating to the pregnancy and parental relationship history to be of notable importance to the maintenance of contact between non-resident fathers and their children. In the first instance, the results suggest marital status is an important correlate of contact. Specifically, where the non-resident father had at some point been married to the child's mother the likelihood of contact increased quite considerably. Whilst this finding was not unexpected, resonating with existing studies (Cheadle et al. 2010; Cooksey and Craig 1998; Furstenberg et al. 1983; Marryat et al. 2009; Seltzer 1991) it is nonetheless important given the trend towards non-marital births (GRO, 2014). Of course a non-marital birth is by no means synonymous with non-resident fatherhood for many non-marital births are to cohabiting parents. Unlike marriage however, the results suggest there is no statistically significant association between the maintenance of contact and non-resident fathers' previous residency with their children. That is to say, fathers who have at some point lived with their non-resident child are not statistically significantly more likely to maintain contact than those who have not.

Aside from parental relationship history, the results suggest circumstances surrounding the pregnancy also play a role in the maintenance of contact. In the first instance, whether the pregnancy was jointly planned was important for whether contact is maintained. Resonating with existing evidence, including previous analysis

of GUS data (Marryat et al. 2009), contact was considerably more likely to occur where the pregnancy had been jointly planned. This may seem to be a straightforward finding; it is both logical and supported by existing evidence. However, more detailed consideration of this finding serves well to illustrate the complexity and interconnectedness of the network of relationships influencing the maintenance of contact. Whether a pregnancy was jointly planned is of course likely to be bound up with a wide range of characteristics and circumstances such as parental age, education and relationship status. For example, one such circumstance of particular interest in the context of the current findings is that babies may be more likely to be planned by married couples (Kiernan, 2005). It has already been seen that contact is considerably more likely to be maintained where the non-resident father has been married to the child's mother. Moreover, married couples may well be characterised by a particular set of attributes in terms of age, education and attitudes towards to parenting. Thus it can be seen that even seemingly straightforward associations are underpinned by a complex network of relationships.

At the same time as suggesting the importance of background circumstances for the maintenance of contact, the results also served to emphasise the limitations of the available measures relating to the circumstances of the pregnancy. For example, an interesting finding in terms of background variables concerned maternal perceptions of fathers' happiness on learning of the pregnancy. The findings indicated a positive association between feelings of happiness and the likelihood of contact occurring. Prima facie such an association may seem logical in addition to resonating with previous analysis of sweep three of the GUS data (Marryatt et al. 2009). However detailed consideration of the results revealed an unexpected finding. Whilst those fathers reported as being neither happy nor unhappy on learning of the pregnancy were statistically significantly more likely to maintain contact than those fathers perceived as being unhappy, the odds of being in contact for those fathers perceived as being happy on learning of the pregnancy were *not* significantly higher than those reported as being unhappy. It seems possible that this discrepancy is serving to highlight weaknesses of the measure employed. The flaws of this measure have already been considered, most particularly the limitations of relying on maternal

reports in attempts to capture the thoughts and feelings of non-resident fathers. This finding appears to emphasise the importance of collecting data directly from non-resident fathers particularly when trying to capture subjective thoughts and feelings. As such, measures which attempt to capture fathers' emotions by way of maternal reports ought to be interpreted with considerable caution.

The lack of a statistically significant association between fathers' attendance at antenatal classes and the maintenance of contact may also serve to highlight weaknesses in the available measures. This finding was not unexpected as the potential limitations of this measure as an indicator of early commitment to the paternal role seemed clear from the outset. For many fathers, it seems possible that non-attendance at antenatal classes may be accounted for by employment constraints rather than a reluctance to participate. As such it seems that the background circumstances relating to the pregnancy considered in analyses suffer from notable weaknesses. It was proposed that measures relating to the circumstances surrounding the pregnancy may serve to capture early commitment to and engagement with the paternal role. As such it was postulated that such factors are likely to be an important consideration for whether contact occurs in the context of early years non-resident fatherhood. With the exception of the finding suggesting the importance of whether the pregnancy was planned, the somewhat surprising finding regarding paternal feelings on learning of the pregnancy coupled with the lack of a statistically significant association between the maintenance of contact and fathers' attendance at antenatal classes could be taken as suggesting that background circumstances surrounding the pregnancy are not particularly important for the maintenance of contact. However, it seems more likely that the available measures are weak indicators of early commitment to and engagement with the paternal role. For example, reliance on maternal reports to capture fathers' feelings on learning of the pregnancy is undoubtedly a flawed measure, whilst fathers' attendance at antenatal classes is arguably quite simply a poor measure of commitment to the paternal role. That the relative absence of associations between background circumstances and the maintenance of contact might be accounted for by the limitations of the available measures is supported by consideration of Kiernan's analysis of the MCS (2005). In

her study exploring non-resident father involvement with their babies at nine months, Kiernan found the father's presence at the birth and whether he was on the birth certificate to be significantly and positively associated with whether contact occurred. These variables are almost certainly stronger indicators of early commitment to and engagement with the paternal role.

Whilst the findings suggested particular background circumstances relating to the pregnancy and parental relationship history to exhibit statistically significant associations with the maintenance of contact, it was interesting to note that none of the selected background variables were statistically significantly associated with levels of involvement amongst those non-resident fathers who had maintained contact. The lack of statistically significant associations is perhaps most interesting when considering parental relationship history. The results suggest that unlike for the maintenance of contact, whether the non-resident father has been previously married to the child's mother is not associated with levels of involvement amongst those in contact. This was contrary to recent analysis of the MCS which found higher levels of closeness, overnight stays and financial support where parents had previously been married, and a somewhat unexpected finding (Goisis et al. 2016).

Finally, in terms of the background circumstances, the lack of statistically significant associations between levels of involvement and any of the variables pertaining to the circumstances of the pregnancy merits comment. On the one hand, the lack of associations seems understandable. It seems quite plausible that factors such as whether the pregnancy was jointly planned may be an important impetus for contact occurring but of less importance for levels of involvement once the commitment to maintaining contact has been made. Alternatively, it might be that the lack of statistically significant associations may be due to the considered weaknesses of the available measures as indicators of early commitment to the paternal role. Offering some support to this assertion, it is interesting to note that the background variables considered by Kiernan (2005) namely the father's presence at the birth and whether he was on the birth certificate were not only associated with whether any contact occurred but also other measures of involvement namely whether fathers paid maintenance, frequency of direct contact, paternal level of interest in the child and

the quality of the inter-parental relationship. This perhaps suggests that rather than background considerations not being important for levels of involvement once the commitment to maintaining contact has been made, that the background measures considered in the current analysis are simply weak indicators of early commitment to the paternal role.

Moving on to consider child characteristics, the results were as expected as regards sex which exhibited no statistically significant associations with either the maintenance of contact or levels of involvement. Whilst some studies have shown non-resident fathers to engage in greater levels of contact with sons than daughters (Hetherington, 1993; Manning and Smock, 1999; Seltzer, 1991) the current results resonate with the majority of studies and indeed recent analysis of the MCS which found no association between sex and non-resident father involvement (Goisis et al. 2016). It is worth noting that the studies cited as reporting an association between sex and levels of contact are now somewhat dated. As views of fatherhood have evolved, perhaps the traditional views that father involvement is of greater importance for sons than daughters has diminished and is reflected in the lack of statistically significant associations in more recent studies. Contrary to this however, it is interesting to note that whilst the current results in terms of the maintenance of contact are consistent with the findings of Haux et al. (2015), that levels of involvement were not associated with sex is contrary to their findings that frequency of contact and frequency of overnight stays were higher with boys than girls.

With regard to child characteristics, whilst sex may have operated as expected, age did not. The fact that GUS is largely successful in ensuring all children are approximately the same age at the time of interview meant it was not expected that age would exhibit statistically significant associations with either the maintenance of contact or levels of involvement. This expectation was indeed met in terms of whether contact was maintained at sweep four. However, the results were surprising in suggesting a positive statistically significant association between age and levels of involvement amongst those non-resident fathers who were in contact. Given that the sample exhibits little variation in terms of age with a difference of only three months

between the youngest and oldest child, it is difficult to understand why levels of involvement may be significantly higher amongst those slightly older children.

Socio-demographic characteristics

A further important finding of this chapter concerned the lack of statistically significant associations between any of the selected socio-demographic characteristics and either the maintenance of contact or levels of involvement. In some regards, the absence of statistically significant associations between particular socio-demographic characteristics and the maintenance of contact or levels of involvement does not fit with existing literature. In terms of education for example, a number of studies have shown statistically significant positive associations between levels of parental education and non-resident fathers' engagement with their children (Arditti and Keith, 1993; Cooksey and Craig, 1998; Goisis et al. 2016; Haux et al. 2015; Maccoby and Mnookin, 1992; Seltzer et al, 1989, Stephens, 1996). However the lack of a statistically significant association between education and the maintenance of contact or levels of involvement does resonate with existing analysis of non-resident fatherhood in the early years. For example, analysis of sweep three of GUS found no association between maternal education and the maintenance or frequency of contact whilst recent analysis of the MCS exploring non-resident father involvement with their nine-month old babies revealed no statistically significant associations between maternal education and the maintenance of contact, frequency of contact, paternal interest in the child and the quality of the inter-parental relationship (Kiernan, 2005; Marryat et al. 2009). Interestingly however, Kiernan did find a statistically significant positive association between maternal education and fathers' payment of maintenance which she noted may be accounted for by better educated mothers having greater skills in negotiating financial support. Finally, it is worth bearing in mind that the current analysis, as was the case with the work of Marryat et al (2009) and Kiernan (2005), is cross-sectional thus providing only a snap-shot account of contact and involvement. In their exploration of trajectories of contact, Cheadle et al (2010) found a statistically significant positive association between fathers engaging in consistently high levels of contact and maternal

education so it is certainly possible that considered over time, education may exhibit statistically significant associations with differing trajectories of contact.

In terms of maternal age, the lack of statistically significant associations with either the maintenance of contact or levels of involvement again finds both support and dissent in the literature. Whilst some studies have suggested parental age is positively associated with levels of contact (Goisis et al. 2016; Manning et al. 2003) the current finding is consistent with previous analysis of GUS (Marryat et al. 2009) which found no statistically significant associations between maternal age and the maintenance of contact nor various other measures of non-resident father involvement including frequency of contact and paternal interest in the child. Similarly, Kiernan (2005) found no statistically significant associations between either maternal or paternal age and non-resident father involvement using the MCS.

In terms of maternal ethnicity, given the little variation in the sample, with some 99 per cent of mothers in non-resident father households being white, the lack of statistically significant associations with the maintenance of contact or levels of involvement was unsurprising. Whilst existing evidence regarding the relationship between contact, involvement and ethnicity is mixed, with the strongest evidence of any association coming from US studies which suggest black fathers engage in more frequent contact than white fathers, there is some evidence from the MCS to suggest that ethnicity may be associated with both the maintenance of contact and levels of involvement. Kiernan (2005) found fathers of mixed race were more likely than white fathers to be in contact and to pay maintenance whilst fathers of black, Indian or 'Other' ethnic origins were less likely to engage in more frequent contact than white fathers. It is important to bear in mind the possibility that the lack of associations in the current analysis may be due to lack of variation in the sample, the ethnic make-up of which, due to issues such as attrition, may or may not accurately reflect the actual population of mothers in non-resident father households in Scotland. Ultimately, as noted in the data chapter, the maternal ethnicity variable used in the analysis is unsatisfactory and the analysis may have better considered a variable such as 'language spoken at home'.

In terms of household economic circumstances, the finding that maternal employment was not statistically significantly associated with the maintenance of contact or levels of involvement is somewhat difficult to situate the within the existing literature as this variable is not routinely included in studies examining correlates of contact. However, as noted, in the context of early years non-resident fatherhood it seemed a particularly pertinent issue for exploration given the potential difficulties mothers of young children may face juggling work and childcare, difficulties which are likely amplified in non-resident father households. The lack of statistically significant associations may indicate that mothers have other sources of support to assist with childcare or indeed that they are in a position to afford childcare provision and are not reliant upon non-resident fathers for help. Alternatively, the lack of statistically significant associations may not signify the presence of other support networks or the ability to afford childcare but rather that mothers are unable to rely on non-resident fathers in this way either due to non-resident fathers not wanting to help out in this way or being unable to help out at suitable times due to constraints of their own employment. Whilst few studies have explored the relationship between maternal employment and non-resident father contact and involvement, the current finding does resonate with Kiernan's analysis of the MCS which found no statistically significant associations between maternal employment and the maintenance of contact or numerous other measures of involvement including frequency of contact, paternal interest in the child and the quality of the inter-parental relationship. However, as with maternal education, a strong statistically significant association was found between maternal employment and the payment of maintenance with mothers in work being more likely to receive maintenance payments. This may be due to working mothers having higher levels of education and being better equipped to negotiate financial support. It is worth noting that whilst the current analysis did not explore relationships between correlates and individual indicators of involvement, such as receipt of informal payments, modification indices did not highlight any statistically significant associations between maternal employment and any particular indicators of involvement.

Finally, it is somewhat difficult to posit the findings regarding household income within the existing research as income is again not routinely considered in studies examining correlates of contact. The findings are however contrary to recent analysis of the MCS which found lower levels of contact and involvement amongst households in the bottom income quintile (Goisis et al. 2016). Whilst the current study found no statistically significant associations between household income and either the maintenance of contact or levels of involvement, it was certainly a pertinent variable for consideration in the context of early years non-resident fatherhood. It was suggested that increased financial resources may be conducive to the maintenance of contact and involvement as households would be better placed to meet the costs of maintaining contact, for example, travel expenses. Of course it is likely, or at least possible, that the costs of maintaining contact typically fall to the non-resident father rather than the mother. If this is indeed the case then consideration of paternal household income may have proved a more enlightening avenue for exploration. Whilst it seems maternal characteristics can in some regards be an adequate proxy for those of fathers they are perhaps less reliable in the context of household income. Mothers of young children in non-resident father households, particularly lone mother households are arguably likely to be more constrained in their ability to take up employment than non-resident fathers and it thus seems possible that the household income of non-resident fathers will be greater than that of resident mothers, or resident lone mothers at least. If this is indeed the case, it is worth noting that Cooksey and Craig (1998) found no statistically significant association between non-resident fathers' income and frequency of direct or indirect contact. As such it is possible that household income may simply not be an important correlate of contact or involvement.

It is important to note that the current analysis was of course limited in being able to consider only maternal socio-demographic characteristics and it is certainly possible that consideration of paternal socio-demographic characteristics would yield different results. Recent research by Poole et al. (2013) for example found non-resident fathers' employment status and level of education to be associated with the maintenance of contact. However as previously discussed, the use of maternal socio-

demographic characteristics as a proxy for those of fathers is by no means an unjustified approach to take with evidence suggesting that the socio-demographic characteristics of resident mothers are a reasonable proxy for those of non-resident fathers.

Situational factors

Finally, consideration of situational factors revealed a number of interesting findings. Most notably, the results revealed maternal relationship status to exhibit statistically significant associations with both the maintenance of contact and levels of involvement. More particularly, resonating with existing evidence, the findings suggest maternal re-partnering is statistically significantly associated with a lower likelihood of contact being maintained and lower levels of involvement amongst those fathers who are in contact (Amato et al. 2009; Furstenberg et al.1983; Juby et al. 2007; Seltzer et al. 1989; Stephens 1996). It is important to note however that the current analysis is cross-sectional thus providing only a snapshot in time therefore the causal nature of this association cannot be ascertained. The contact histories of fathers are not considered but are likely of importance. For example, were these fathers in contact prior to the mother re-partnering or had contact already ceased or indeed never taken place? Ultimately this is a finding that requires greater depth of exploration, ideally undertaking longitudinal analysis using data from both resident mothers and non-resident fathers.

Finally, in terms of situational factors, the current analysis indicated geographical distance between non-resident fathers and children to be statistically significantly associated with levels of involvement, or more specifically, the frequency of direct contact. Such a finding is unsurprising and accords with a large body of existing evidence (Arditti and Keith, 1993; Cheadle et al. 2010; Cooksey and Craig 1998; Furstenberg et al. 1983; Manning and Smock, 1999; Marryat et al. 2009; Seltzer et al. 1989; Stephens 1996).). It seems plausible that those fathers living further away from their child will engage in less frequent direct contact due to practical issues such as transport, money and time. However, it is equally plausible that fathers who live further away from their children are those who are less inclined to be ‘involved father’. Due to the cross-sectional nature of the current analysis these are interesting

issues which cannot be explored. For example, it could not be determined whether there had been an increase in geographical distance between the non-resident father and child and therefore it is not possible to say whether increased distance is responsible for a decrease in direct contact. It would be interesting to explore whether increases or decreases in geographical distance are associated with respective decreases and increases in levels of direct contact. Moreover, it would be interesting to consider whether an increase in geographical distance was due to relocation on the part of the mother or the non-resident father. Where mothers have moved away fathers may in fact wish to see their children more frequently but are constrained from doing so due to issues such as time, transport and money. Alternatively, where fathers have chosen to move away from their children this could potentially signify a lack of commitment to the paternal role.

Taken collectively, the results raise a number of implications for researching non-resident fatherhood and indeed for policy and practice. Firstly, the importance of background circumstances including parental relationship status and some circumstances surrounding the pregnancy offer support to the assertion that the dynamics of non-resident fatherhood in the early years may be distinct to that experienced at later stages. As such, the results are supportive of the decision to study early years non-resident fatherhood in its own right rather than subsuming it within studies considering later stages of childhood. In terms of policy, the promotion of contact and involvement between non-resident fathers and children as a vehicle to improve the child's wider household circumstances may prove particularly challenging if parents have no form of established relationship and are separated before the child's birth. There is perhaps a role to play for antenatal and postnatal services working with expectant lone mothers to encourage and support non-resident father involvement in appropriate circumstances.

7.6 Conclusions

There are a number of key conclusions to be drawn from this chapter. Firstly, background circumstances relating to the pregnancy and parental relationship history appear to be important for the maintenance of contact between non-resident fathers and their children. More specifically, contact was more likely to occur where the non-resident father had been previously married to the child's mother and the pregnancy had been jointly planned. The background circumstances considered in the current analysis were not however statistically significantly associated with levels of involvement amongst those fathers who maintained contact.

Secondly, in terms of child characteristics, neither the maintenance of contact nor levels of involvement were statistically significantly associated with sex whilst the former also exhibited no statistically significant association with age. The results did however suggest a positive association between age and levels of involvement. This was a somewhat surprising finding meriting greater exploration in future research.

Thirdly, the selected maternal socio-demographic characteristics exhibited no statistically significant associations with either the maintenance of contact or levels of involvement. Of course, consideration of paternal characteristics may have offered different insights. Moreover, it is important to note that socio-demographic characteristics are potentially still associated with the maintenance of contact and /or levels of involvement indirectly via other correlates such as whether the pregnancy was jointly planned or whether the parents were ever married.

Fourthly, situational factors are important for both the maintenance of contact and levels of involvement. Most notably, maternal re-partnering appears to be an important correlate of both the maintenance of contact and levels of involvement. Additionally in terms of situational factors, for levels of involvement, geographical distance between non-resident fathers and their children appears to be an important correlate of frequency of contact with those non-resident fathers living more than one hour away by car from their child engaging in statistically significantly lower levels of direct contact than those living up to thirty minutes away.

Finally whilst this chapter addressed its key aims of exploring the circumstances and characteristics associated with the maintenance of contact and levels of non-resident father involvement, there are a number of ways in which future research could improve and build upon the current analysis. In the first instance, whilst the lack of data collection with non-resident fathers has been highlighted as a notable limitation of the GUS dataset throughout this thesis, this chapter served to amplify this weakness. Whilst it may be arguable that the socio-demographic characteristics of mothers may be an adequate proxy for those of non-resident fathers, what the GUS data and thus the current analysis is notably lacking is measures of paternal attitudes and beliefs. Such measures may serve to aid understanding of a number of the current findings for example, the nature of associations between parental relationship history and the maintenance of contact. The lack of data collection with non-resident fathers is unfortunately not a criticism unique to GUS but rather a regrettable feature of much work in the field of non-resident fatherhood which must be addressed. It seems without doubt that research in the field of non-resident fatherhood would be richly enhanced by conducting data collection with both mothers and non-resident fathers.

Secondly, aside from the absence of data collected directly from non-resident fathers, there are a number of other ways in which the analysis would have benefited from inclusion of variables not available in the dataset. Such an absence of data was perhaps most notable in terms of measures relating to background circumstances. Whilst inclusion of the available background variables is a valuable aspect of the current study there were certainly variables of potential interest lacking in GUS. For example, whether fathers attended the child's birth and whether their name was on the birth certificate both collected by MCS and found to be statistically significantly associated with contact and a number of measures of non-resident father involvement (Kiernan, 2005).

Finally, as with previous chapters, the findings highlighted a number of issues which would benefit from longitudinal consideration. From a broad perspective, it would be interesting to examine trajectories of contact and involvement over time. More specifically, longitudinal consideration of issues such as maternal re-partnering and

geographical distance would likely aid understanding of the factors underlying their associations with contact and involvement. It is unfortunate to note therefore that GUS does not capture detailed contact and involvement measures from all non-resident father households at each sweep but rather collects such information at each sweep only from cases where the father is newly non-resident. Such analysis would undoubtedly provide a fuller more in-depth account of contact and non-resident father involvement and potentially assist policy makers and practitioners to better support contact and involvement in the appropriate circumstances.

Chapter 8: Conclusions

8.1 Introduction

This research was motivated by two key interests: firstly, an interest in exploring the assumptions evident in law, policy and indeed everyday discourses that non-resident fatherhood is inherently detrimental to child well-being and that such detriment can be alleviated by positive non-resident father involvement; and secondly, an interest in exploring these issues in the context of children's early years given its increasing prevalence and the relative inattention paid thereto by existing studies. This thesis therefore sought to achieve two over-arching aims. Firstly, to address the gap in the existing literature in the relative inattention given to non-resident fatherhood in children's early years and secondly, to move beyond the simple dichotomies of father presence absence characterising much existing literature and permeating law and policy to explore the pathways through which non-resident fatherhood may operate to influence child well-being. The thesis also sought to adopt a more theoretically informed approach to the conceptualisation and measurement of child well-being than has typically been the case in existing studies to develop a comprehensive, holistic account of child well-being. Similarly, it sought to build upon existing studies to develop a more comprehensive measure of non-resident father involvement encompassing key aspects identified as important for child well-being by existing studies.

Using data from the Growing Up in Scotland study this research explored associations between non-resident fatherhood and child well-being in children's early years and the potential pathways through which such associations may operate. The use of structural equation modelling enabled multi-dimensional constructs of child well-being and non-resident father involvement to be developed and allowed consideration of the extent to which firstly, living in a non-resident father household, and secondly, non-resident father involvement is associated with child well-being directly, or indirectly, via household income, maternal mental health and parenting behaviours.

This final conclusions chapter is structured in five parts. Firstly, a summary of the key research findings is provided. Secondly, the implications of the thesis as a whole for theory and researching non-resident fatherhood are discussed. Thirdly, the implications of the thesis as a whole are considered in relation to law, policy and practice. Fourthly, consideration is given to the limitations of the study, before the thesis concludes by identifying future areas of research.

8.2 Summary of key findings

The thesis contained three substantive chapters; the first two of which examined associations between non-resident fatherhood and child well-being in children's early years and the third of which explored correlates of contact and non-resident father involvement. The empirical analysis in these chapters was driven by the following key research questions:

1. *Is early child well-being poorer in non-resident father households compared to two natural parent households?*

2. *To what extent is living in a non-resident father household associated with child well-being directly through paternal absence, and / or, indirectly via economic resources and parental resources?*

3. *Is non-resident father involvement associated with enhanced child well-being in the early years?*

4. *To what extent is non-resident father involvement associated with enhanced child well-being directly, and / or, indirectly via household economic circumstances and parental resources?*

5. *What circumstances and characteristics are associated with the maintenance of contact and levels of non-resident father involvement in the early years?*

Chapter five focussed on the first and second research questions which sought to examine whether early child well-being is poorer in non-resident father households and the pathways through which any such associations may operate. To do so,

confirmatory factor analysis was used to develop a multi-dimensional construct of child well-being encompassing four domains namely, social, emotional and behavioural development, cognitive development and ability, general health and material situation. The analysis distinguished between non-resident father households headed by a lone mother and those in which the mother had re-partnered and used structural equation modelling to test direct and indirect associations transmitted via household income, maternal mental health and parenting behaviours.

The empirical analysis indicated the well-being of children in non-resident father households headed by a lone mother is statistically significantly poorer than their contemporaries in two natural parent households across each of the four domains of well-being, although primarily indirectly rather than directly. In terms of pathways, the results indicated only one statistically significant direct association between living in a lone mother household and child well-being in the domain of material situation. There were no statistically significant direct associations with each of the other three domains of well-being. Consistent with previous research, both household income and maternal mental health were found to be statistically significantly poorer in lone mother households compared to two natural parent households and the results suggest that much of the negative association of living in a lone mother household is transmitted through the mediating influence of these variables, most notably household income. The analysis indicated statistically significant indirect associations between living in a lone mother household and greater social, emotional and behavioural difficulties, poorer cognitive development, poorer general health and poorer material situation transmitted via household income. In addition, the results showed statistically significant indirect associations between living in a lone mother household and poorer outcomes in the domains of social, emotional and behavioural development and general health transmitted via maternal mental health.

Interestingly, on controlling for confounding factors, the results suggested parenting behaviours were not statistically significantly poorer in lone mother households relative to two natural parent households, with levels of household chaos in fact being found to be statistically significantly lower in lone mother households. As such, parenting behaviours were not found to directly mediate associations between

living in a lone mother household and child well-being. However, highlighting again the importance of income and maternal mental health, the results indicated the poorer household income and maternal health typically characterising lone mother households to exhibit statistically significant associations with poorer parenting behaviours and as such, parenting behaviours did operate to mediate the relationship between living in a lone mother household and aspects of child well-being through more complex pathways. Thirdly, the results clearly highlighted the complexity of the pathways through which the negative associations between living in a lone mother household and child well-being may operate. For example, whilst living in a lone mother household was not statistically significantly associated with poorer parenting behaviours per se, the poorer household income and maternal mental health typically characterising such households exhibited statistically significant associations with poorer parenting behaviours which were then in turn statistically significantly associated with poorer child well-being.

Unlike lone mother households, for non-resident father households in which the mother has re-partnered, the empirical analysis indicated the well-being of children in such households was not statistically significantly different to that in two natural parent households ceteris paribus. This finding raised interesting questions as to its explanation. Given that household income, maternal health and parenting behaviours were not found to be statistically significantly different across re-partnered mother households and two natural parent households, it might be that child well-being is enhanced by maternal re-partnering due to improved household circumstances, in particular increased household income. However, it is possible that there is something about the presence of a father figure, regardless of biological link, that is beneficial to child well-being. In any event, that child well-being did not exhibit a statistically significant association with living in a re-partnered mother households coupled with the relative lack of statistically significant direct associations between living in a lone mother household and child well-being may point to conclusions that the absence of the child's biological father from the household is not inherently problematic for child well-being.

Chapter six was concerned with the third and fourth research questions posed by the study which sought to examine whether non-resident father involvement is associated with enhanced child well-being and the pathways through which any such associations may operate. Due to the restrictions of the available data, the analysis specifically considered whether, for those children who had some form of contact with their non-resident father, paternal involvement was associated with child well-being. The latent construct of child well-being developed in chapter five was used in analysis and a further confirmatory factor analysis was undertaken to develop a multi-dimensional latent construct of non-resident father involvement encompassing provision of financial support, frequency of contact, the father-child relationship and the inter-parental relationship. Structural equation modelling was used to test direct and indirect associations transmitted via household income, maternal mental health and parenting behaviours.

The empirical analysis offered limited evidence of the potential benefits of non-resident father involvement for child well-being suggesting that non-resident father involvement may be of limited benefit to child well-being if the child's wider household circumstances are characterised by low income and poor maternal mental health. The results revealed no statistically significantly direct associations between non-resident father involvement and any of the four domains of well-being and only three statistically significant indirect associations. Consistent with existing studies, the current analysis found statistically significant associations between non-resident father involvement and fewer social, emotional and behavioural difficulties. These associations were found to operate indirectly via firstly, maternal mental health, secondly, maternal mental health and levels of household chaos, and thirdly, maternal mental health and levels of mother-child conflict. This prompted discussion of the usefulness and indeed appropriateness of the current legal and policy approach which appears to focus on preservation of the link between biological father and child on the assumption that positive non-resident father involvement is inherently beneficial for child well-being. Such a focus is perhaps at the expense of considering more broadly how non-resident fathers may potentially enhance child well-being indirectly by supporting the child's mother and the wider circumstances of the

child's household. In addition, the relative absence of evidence indicating statistically significant associations between non-resident father involvement and child well-being prompted discussion as to the limitations of the GUS data and indeed quantitative data more broadly at capturing the aspects of non-resident father involvement that may be important for child well-being.

Finally, chapter seven addressed the fifth research question which sought to identify the circumstances and characteristics associated with the maintenance of contact and levels of non-resident father involvement in the early years. A range of correlates identified from the literature were explored under the under broad categories of child characteristics and background circumstances, socio-demographic characteristics, and situational factors. There were two distinct strands to analysis. Logistic regression modelling was used to explore the circumstances associated with the maintenance of contact whilst those associated with levels of involvement were explored using structural equation modelling.

Overall, the results indicated situational factors to be important for both the maintenance of contact and levels of involvement. Specifically, maternal re-partnering appears to be negatively associated with the maintenance of contact and levels of involvement. In addition the results indicated increased geographical distance between fathers and children to exhibit a statistically significant association with lower levels of direct contact.

The results also indicated background circumstances to be important correlates of contact. Specifically, contact was significantly more likely to be maintained where parents had been previously married, the pregnancy was jointly planned and the child's mother had not re-partnered. Background circumstances were not however statistically significantly associated with levels of involvement.

In terms of child characteristics, sex was not statistically significantly associated with either contact or involvement. The age of the child was not associated with the maintenance of contact but interestingly, did exhibit a statistically significant positive association with levels of involvement.

Finally, the results indicated neither the maintenance of contact nor levels of involvement to be statistically significantly associated with maternal socio-demographic characteristics.

8.3 Implications for theory and researching non-resident fatherhood

The discussion sections of each of the three substantive chapters located the research findings in the context of existing empirical studies and presented considered interpretations of individual findings. The findings of the thesis as a whole and the implications for researching non-resident fatherhood and child well-being and indeed the field of fatherhood studies more widely are now considered.

Considering first the usefulness of the conceptual framework which underpinned the research enquiry in chapters five and six, the framework was formulated to enable consideration of if, and how, non-resident fatherhood might be associated with child well-being directly, and indirectly, via economic resources and parental resources. As noted, the framework was not driven by one overarching theory but rather was constructed by 'borrowing' multiple concepts and theories from across various fields of study. Overall however, the conceptual framework was underpinned by an ecological approach to child well-being as developed by Bronfenbrenner (1979) which suggests that child well-being is affected by a variety of influences and factors.

The adoption of an ecological approach to child well-being and the development of the conceptual framework were driven by a motivation to overcome a key limitation of the existing literature by looking beyond the simple dichotomy of paternal presence / absence which characterises much of the existing literature. Consideration of child well-being in non-resident father households through the lens of such a dichotomy is ultimately at odds with an ecological approach to child well-being as it serves to mask the underlying dynamics at play by failing to take account of the complex multitude of factors that interact to influence child well-being and how these might interact with the practices of non-resident fatherhood.

It was a central goal for the current study to move beyond the dichotomy of father presence / absence and the research sought to do so in two key ways. Firstly, the study considered the pathways through which living in a non-resident father household may be associated with child well-being directly, via the absence of the child's father from the household, and indirectly, via potentially mediating mechanisms. Secondly, the study distinguished between non-resident father households headed by a lone mother and those in which the mother had re-partnered thus bringing a new 'father figure' into the household.

Overall, the results of chapters five and six lend strong support to usefulness of adopting an ecological perspective of child well-being and indeed the usefulness of the current conceptual framework as a tool for understanding associations between non-resident fatherhood and child well-being. Ultimately, the results in chapter five and six indicated a relative absence of statistically significant direct associations between non-resident fatherhood and child well-being. The results suggest that much of the association between non-resident fatherhood and child well-being is transmitted indirectly via the mediating mechanisms and indeed via complex associations between the mediators themselves. Moreover, the results were supportive of the decision to consider lone mother and re-partnered mother households separately in finding the well-being of children in lone mother households, but not re-partnered mother households to be poorer than that in two natural parent households. Greater consideration will subsequently be given to implications of this particular finding. Overall, the results clearly highlight the limitations of examining associations between child well-being and non-resident fatherhood through the simple lens of father presence / absence. Simple dichotomies such as this undoubtedly serve to mask the underlying complex network of associations at play. In this regard, Bronfenbrenner's (1979) ecological approach to child well-being has much to offer to the field of non-resident fatherhood studies. Indeed, in recognising the importance of the interaction of multiple factors and influences and the importance of context, an ecological approach to child well-being potentially has much to offer to studies of families and relationships more widely. The use of complex statistical modelling such as SEM is apt to support consideration

of an ecological approach to child well-being and therefore potentially has much to offer to development of a more detailed, nuanced understanding of associations between child well-being and non-resident fatherhood.

Beyond consideration of the usefulness of the conceptual framework more broadly, the findings in chapters five and six raise important implications for particular aspects of the framework. Firstly, the results have potentially important implications for our understanding of the terms fathers, fathering and fatherhood and the ways in which researchers may choose to operationalise and measure these terms. As discussed in chapter two despite there being considerable consequences to being deemed the father of child, acquisition of such status is ultimately a matter of definition. The current research findings suggest that this sentiment applies equally in the context of empirical studies of non-resident fatherhood and indeed fatherhood more generally. The results of chapter five indicating that child well-being is generally poorer in non-resident father households headed by a lone mother, but not those in which the mother has re-partnered, compared to two natural parent families serves to highlight that the definitions of fathers adopted by researchers, in this case the definition of non-resident father household, can have considerable implications for both the results of individual research projects but also development of the field of studies more broadly. Had the current research not distinguished between these two types of non-resident father household, an important element of the research findings would have been lost having been masked by a more simplistic categorisation. It is therefore vitally important that researchers consider carefully the implications of the conceptualisation and measurement of the term fatherhood used in studies. Unsurprisingly, more nuanced definitions will likely offer greater insights. In addition, the results raise interesting implications for which types of fathers researchers choose to study in studies of fatherhood, for example, biological fathers or social fathers. The current results suggest that if we are looking to explore and advance understandings of the potentially positive benefits of father involvement then perhaps it is the social father (Hobson and Morgan, 2002), or rather what might be termed the 'relational father' based on Browne's concept of relational fatherhood (2013) that is of interest. In other words, it is the person who is fulfilling the paternal

role by engaging in acts of care that is likely of greatest interest when looking to explore associations between paternal involvement and child well-being.

Following on from this, the results in chapter six concerning associations between non-resident father involvement and child well-being have interesting implications for our understanding of the paternal role for both non-resident and resident fathers. The conceptualisation and measurement of non-resident father involvement was drawn from existing empirical studies which had sought to reflect evolving understandings of the paternal role to include both economic provider and involved father. Through the conceptual framework and adoption of an ecological approach to child well-being the current study took a somewhat novel approach to exploring associations between child well-being and non-resident father involvement by seeking to understand the pathways through which such associations may operate by disaggregating direct and indirect effects. This approach offered interesting insights into the role of the non-resident father and raises potentially important implications for researching non-resident father involvement.

As existing studies have typically not explored the pathways through which involvement may be associated with child well-being, this has arguably led to a focus on the direct benefits of non-resident father involvement for child well-being perhaps at the expense of considering the potential benefits of the role of the non-resident father more broadly. Whilst acknowledging that the current analysis was limited in considering only those cases where contact occurred and indeed by the measures of non-resident father involvement available, that the empirical analysis in chapter six found no statistically significant direct associations between non-resident father involvement and child well-being but only statistically significant indirect associations transmitted via maternal mental health, arguably suggests we need to reconsider the role of the non-resident father in terms of how it can potentially enhance child well-being indirectly through supporting resident mothers in addition to directly through positive involvement with the child.

Framing the findings of chapter six in terms of Bronfenbrenner's (1979) ecological approach to child development, it could be suggested that the role of the non-resident

father might be better understood as an influence operating in the child's exosystem, and thus akin to that of the child's extended family, as opposed to an influence operating in the child's microsystem, akin to the role of the mother. Of course, the specific context of this study must be borne in mind when making such an assertion. Given that in the context of the current study, most of the non-resident fathers had never previously lived with their child it is perhaps therefore logical that their influence would be more akin to the extended family than to the maternal role. It would therefore be interesting to consider non-resident father involvement through the lens of an ecological approach at later stages of childhood and adolescence where fathers had been previously resident.

Ultimately, the results suggest it would be helpful to broaden our conceptualisation of the role of the non-resident father to include consideration of how non-resident fathers can support mothers and the wider household circumstances. Through doing so we can likely further develop our knowledge and understanding of how non-resident father involvement might be associated with child well-being and potentially offer helpful insights for how policy and practice consider and approach the issue of contact and non-resident father involvement. In addition, whilst these issues are perhaps more apparent and indeed of more pressing concern in non-resident father households due to the father's physical absence from the household, an ecological approach to child well-being could be an interesting lens through which to explore paternal involvement in resident father households too. Where a resident father is fulfilling a positive paternal role in the home in terms of the roles of involved father and economic provider, this involvement could be operating both directly and indirectly to influence child well-being.

The thesis findings also have implications for the various theoretical perspectives underpinning the selection of the mediating variables. As discussed in chapter two, the research drew upon existing studies of non-resident fatherhood and the broader family structure literature to identify two key mechanisms which may act as important mediators in the relationship between non-resident fatherhood and child well-being namely, economic resources and parental resources encompassing maternal mental health and parenting behaviours.

In terms of economic resources, the research drew upon economic theory which suggests that the well-being of children in lone mother households will be poorer than that in two parent households due to poorer economic resources typically characterising such households (Becker, 1964, 1981; Becker and Tomes, 1986). Chapter five of this thesis offers support to the assertions of economic theory. Indeed, the findings suggest household economic resources are an important mechanism mediating associations between living in a lone mother household and child well-being. Moreover, the results supported the assertion of economic theory that it is the presence of two parents in the households that is important rather than the presence of both natural parents. As such, economic theory appears to be a useful lens through which to explore associations between child well-being and living in a non-resident father household.

It is interesting to consider what this might mean for theory formation within an ecological approach to child well-being. In particular it is interesting to consider to what extent economic theory could be regarded as being a requirement or priority for an ecological approach for child well-being to consider. It is possible such an argument could be made. As economic resources are undoubtedly a key driver of child well-being, it may be difficult to justify a study which purports to take an ecological approach to child well-being not giving some consideration to their influence. Within an ecological approach to child well-being it seems clear that economic theories could be given priority in terms of their consideration as a key influence on child well-being for an ecological approach certainly seems compatible with a hierarchy of concepts and causes. At its basis it distinguishes between three spheres of influence, those in the microsystem which are regarded as directly influencing child well-being, those in the exosystem which are regarded as indirectly influencing well-being via their associations with influences in the microsystem, and lastly, those in the macrosystem which are regarded as influencing well-being via their associations with influences in both the microsystem and exosystem. As such, an ecological approach supports complex theory formation and permits a hierarchy of influences to be hypothesised and tested.

In terms of maternal mental health, the conceptual framework suggested that the typically poorer well-being characterising non-resident father households may be a function of the poorer maternal mental health characterising such households relative to two natural parent households. The results in chapters five were consistent with previous studies suggesting lone mother households to be characterised by poorer maternal mental health (Brown and Harris, 1978; Brown and Mooran, 1997; Brown, 2000, 2002, 2004). However, unlike existing studies (Brown, 2000, 2002, 2004), the current results suggested maternal mental health was not poorer in re-partnered mother households. In terms of lone mother households, the results in chapter five clearly supported the submission of the conceptual framework indicating maternal mental health to be a key pathway through which living in a non-resident father lone mother household is associated with poorer child well-being across a range of domains. Similarly, the results in chapter six indicated maternal mental health to be the only pathway through which non-resident father involvement was statistically significantly associated with enhanced child well-being in the form of fewer social, emotional and behavioural difficulties. The current research however is limited in the extent to which it can comment on *why* maternal mental health is poorer in lone mother households, although as noted, several perspectives have been set forth including the transition to non-resident fatherhood and the financial hardship characterising non-resident father households. Given the importance of the associations between non-resident fatherhood, maternal mental health and child well-being, it is important to explore these pathways further. Ultimately, it seems clear that maternal mental health is again an important lens through which to explore associations between non-resident fatherhood and child well-being.

Finally, in terms of parenting behaviours, the research drew upon several theoretical perspectives which suggested that child well-being in non-resident father households would be negatively influenced by the poorer parenting behaviours typically characterising such households relative to two natural parent households, namely socialisation theory, learning theory and control theory (Baumrind, 1978, 1980; Kohn 1969, 1983; Nock, 1988). Each of these perspectives suggests that child well-being will be poorer in non-resident father households due to the poorer parenting

behaviours typically characterising such households. The results in chapters five and six indicate that parenting behaviours is a useful lens through which to explore associations between non-resident fatherhood and child well-being but the results were not necessarily fully supportive of these perspectives. The results indicated that poorer parenting behaviours in lone mother households are not an inevitable consequence of paternal absence. On controlling for confounding factors including income and maternal mental health, levels of parental supervision and levels of mother-child conflict were not statistically significantly different to those in two natural parent households. Moreover, levels of household chaos were found to be statistically significantly lower in lone mother households than two natural parent households. This contradicts socialisation theory, control theory and learning theory which Biblarz and Raftery (1999) note suggest that parenting behaviours will necessarily be poorer in lone mother households. However, as noted, the results in chapter five indicated that the poorer household economic resources and maternal mental health characterising lone mother households operates to negatively influence parenting behaviours in lone mother households. As such, lone mother households are in fact generally characterised by poorer parenting behaviours relative to two natural parent households. This finding accords with elements of socialisation theory which although suggesting parenting behaviours will inevitably be poorer in lone mother households, also suggests that financial hardship and poorer maternal mental health in non-resident father households may operate to negatively influence parenting behaviours in such households. Overall the results suggest that parenting behaviours are perhaps best viewed as an indirect mechanism through which other influences such as household income and maternal mental health may operate to influence child well-being in non-resident father households. As such, it would seem that parenting behaviours are an important part of a broader framework for exploring associations between child well-being and non-resident fatherhood rather than a key explanatory mechanism in and of themselves.

Lastly in terms of the conceptual framework, a key aim of the current research was to adopt a theoretically informed approach to the conceptualisation and measurement of child well-being. Whilst the latent construct undoubtedly had its limitations, it served

to address a notable limitation typically characterising existing studies highlighted by Adamsons and Johnson's recent meta-analysis (2013) namely the absence of multi-dimensional measures of child well-being. Firstly, the results suggest that a theoretically informed approach to the conceptualisation and measurement of child well-being is a helpful approach to exploring associations between child well-being and non-resident fatherhood given the differing associations found between non-resident fatherhood and particular domains of well-being. Secondly, even in the absence of a subjective approach to the conceptualisation and measurement of child well-being, a theoretically informed approach to the study of child well-being can help bring a more child-centred approach to the quantitative study of child well-being. It is somewhat paradoxical to note that such an approach does not appear evident, at least not immediately so, in existing studies of non-resident fatherhood which have as their core concern the well-being of children. Of course to truly implement a child-centred approach children would become active participants in the research process and not simply passive subjects. The current research has not achieved this but it is a goal worthy of consideration in future studies.

Finally, the findings in chapter seven exploring the correlates of contact and involvement have important implications for the study of non-resident fatherhood and child well-being. As noted, the analysis in chapter seven was not underpinned by the conceptual framework but was rather informed by the findings of the preceding analysis and was primarily undertaken to offer insights into how the maintenance of contact and levels of involvement can be best supported as a potential means of improving the child's wider household circumstances. As such, the key implications arising from this chapter are primarily for policy and practice and will be subsequently considered. Ultimately however, the findings regarding the maintenance of contact indicating the importance of background circumstances including parental relationship history and whether the pregnancy was planned are supportive of the assertion that the dynamics and circumstances of non-resident fatherhood in the early years are likely distinct to those characterising non-resident fatherhood in middle childhood or adolescence. As such the findings in chapter seven serve to highlight the need to differentiate between differing ages and stages of

childhood in studies of non-resident fatherhood. In addition, the limitations of a number of the measures in this analysis, for example, maternal reports of fathers' happiness on learning of the pregnancy, served to emphasise the importance of carrying our data collection directly with non-resident fathers in addition to resident mothers.

8.4 Implications for law, policy and practice

The research findings raise a number of implications for law, policy and practice. Firstly, as has been noted, my initial interest in this research area stemmed from consideration of the approach to non-resident fatherhood taken by law and policy. Chapter three indicated law and policy to be underpinned by a general principle that the maintenance of non-resident father – child relationships is beneficial to child well-being. Although the National Parenting Strategy does explicitly acknowledge that the absence of the child's biological father is not inherently problematic for child well-being, both law and policy in the form of the Parenting Agreement, through promotion of contact arguably gives the underlying impression that paternal absence is detrimental for child well-being thereby potentially serving to perpetuate views that non-resident father is inherently problematic for child well-being. The results of this study shed some doubt as to the appropriateness of the current approach. The relative lack of statistically significant direct associations between child well-being and living in lone mother household coupled with the finding that child well-being in re-partnered mother households is not statistically significantly poorer relative to two natural parent households suggest that the absence of the child's natural father from the household is not necessarily detrimental for child well-being. In addition, the lack of statistically significant associations between non-resident father involvement and child well-being arguably calls into question the appropriateness of the general principle that contact will necessarily be beneficial to child well-being. The overarching principle of the 'welfare of the child' and consideration of each case on its own merits therefore seems to be the most appropriate way for the court to approach decision-making.

Secondly, for those services and practitioners working with families experiencing non-resident fatherhood, including children, mothers and fathers, the overall findings of the thesis indicating the complexity of dynamics in non-resident father households raise particular implications. The results suggest that supporting and enhancing the well-being of children in lone mother households is unlikely to be achieved by supporting and encouraging the maintenance of father-child relationships alone, but rather that a holistic approach is required. The well-being of children in non-resident father households will likely benefit from services and practitioners taking a broad approach to support, including supporting mothers and the wider household circumstances. Such an approach is arguably already provided for within the Getting it right for every child framework (GIRFEC) which at its premise fosters amongst services a joined up approach to working with children and families to ensure the well-being needs of children are met (Scottish Government, 2008). The current research cannot comment upon the extent to which this operates in practice for those children experiencing non-resident fatherhood but can comment to strongly recommend the GIRFEC principles are applied when working with families experiencing non-resident fatherhood. Similarly, voluntary organisation seeking to advance fathers' rights to maintain relationships with their non-resident children could potentially do much to enhance the well-being of children in non-resident father households not by simply promoting the direct importance of maintaining father-child relationships, but by expanding consideration and promotion of the important role that non-resident fathers can potentially play in supporting resident mothers and the wider household circumstances in which the child lives.

Thirdly, with regard to policy, it would likely be highly beneficial to child well-being if the joined up approach to working purported to be at the heart of GIRFEC, was reflected in the policy approach to non-resident fatherhood. Given the complexity of the network of associations at play in non-resident father households it is important that those formulating policy give consideration to how differing aspects of policy reform may interact to impact upon the circumstances of non-resident father households. Moreover, it is important to ensure that policy focus is not simply on promoting non-resident father involvement for ultimately, positive father-child

involvement may be of limited benefit if child's household is afflicted by poor economic circumstances and poor maternal mental health.

Considering then more specifically how policy might serve to support the typically poor economic circumstances characterising lone mother households. What appears to be of key importance here is supporting and boosting household income in lone mother households. As noted, at a very basic level, it is important that particular attention is paid to the implications of welfare reform for lone mother households and policies should be carefully scrutinised as to the extent to which they may consign such households to increased levels of financial hardship. More specifically, that the analysis in chapter six did not suggest there to be a direct association between provision of financial support by non-resident fathers and household income may raise particular implications for policy. Is it that non-resident fathers cannot afford to adequately support their children financially or are they perhaps unwilling to do so? Could it be that greater levels of in-kind support come at the cost of supporting the financial circumstances of the child's house more broadly? Further research is needed to understand these potential associations but the current results highlight the need for policy makers to consider how best to support the economic circumstances of non-resident father households. This might be through tougher enforcement of the obligation on non-resident fathers to financially provide for their children. If fathers cannot afford to do so however, consideration needs to be given more broadly to the role of the welfare system as a means of financial support, for example protecting rather than eroding child tax credits.

In terms of maternal mental health, whilst typically poor maternal mental health is not an experience unique to lone mother households in children's early years, it is nonetheless possible that the context of the early years presents particular opportunities for supporting maternal mental health. In the first instance, where mothers are lone mothers from before the child's birth, midwives and health visitors offer an important avenue through which to engage with this particular group of mothers. Moreover, for those who experience the transition to non-resident fatherhood before the child commences pre-school the Scottish Government's (2015) recently published information about the new universal health visiting pathway from

pre-birth to pre-school could prove to be an important opportunity to identify and engage with those lone mothers experiencing poor mental health. However, in light of recent findings suggesting mothers' perceived parenting competence may still suffer post separation even if maternal mental health improves (Platt et al. 2015), it is important to highlight that it may not be enough to focus solely on supporting maternal mental health but that it would be beneficial to seek to support lone mothers with parenting more broadly. Again this is in-keeping with a holistic approach to supporting non-resident father households.

When suggesting that it is important to take a holistic approach to supporting the well-being of children in non-resident father households, such an approach does of course include supporting the maintenance of contact and involvement in appropriate circumstances. The findings in chapter seven raise interesting implications in this regard when considering non-resident fatherhood in children's early years. The results clearly highlight the importance of background circumstances to the maintenance of contact for example, parental relationship history and some of the circumstances surrounding the birth of the child, and lend support to the assertion that that the dynamics of non-resident fatherhood in the early years may be distinct to that experienced at other stages. As such, the policy approach to supporting contact and involvement likely requires a distinct approach in the early years. In particular, the results suggest that supporting the inter-parental relationship is an important aspect of encouraging the maintenance of contact. This raises potential difficulties in the context of the early years given that parents may not have an established relationship history and that many non-resident fathers may be non-resident from the child's birth. How can the involvement of fathers be supported if parents are apart before the child is even born? Perhaps there is again a potential role for midwives / health visitors to engage with mothers and promote the potential benefits of positive non-resident father involvement. In doing so fathers could then potentially be involved in parenting classes and other ante-natal opportunities.

Finally, it seems important to reflect that the current findings could be viewed in a positive light as presenting opportunities for policy and practice. Overall the results of this thesis suggest that the well-being of children in non-resident father

households need not necessarily be poorer than their contemporaries in two natural parent households as an inevitable consequence of the absence of the natural father from the household and indeed that non-resident father involvement is not necessarily directly beneficial for child well-being. As such, in situations where non-resident fathers are not involved in their children's lives, if policy and practice can work to support resident mothers and the broader household circumstances, most notably household income, it is not a necessary consequence that these children will experience poor child outcomes.

8.5 Limitations of the study

There are a number of ways in which the analysis and results of this study could be improved upon many of which have been identified and considered throughout the thesis. The purpose of this section therefore is not to consider the specific limitations of particular measures or aspects of analysis but rather to reflect upon the key limitations of the study more broadly.

Firstly, arguably the greatest limitation of the research is that it takes no account of the perceptions of non-resident fathers. Resident mothers and non-resident fathers' accounts of non-resident fatherhood can differ considerably and ideally both perspectives would have been considered. This limitation is likely at its most problematic when considering the findings of chapters seven and eight. There is evidence to suggest that resident mothers may under-report levels of non-resident father involvement and this may have had an impact on the research findings. For example, if levels of involvement were indeed under-reported less likely to identify positive associations between involvement and child well-being. Ultimately, it is possible, if not indeed likely, that reliance on maternal reports introduces bias into the research findings. However, it is important to note that given the key concern of the study is the well-being of children in non-resident father households, in the absence of available data from both mothers and fathers, it is arguable that resident mothers are better placed than non-resident fathers to provide a more detailed account of child well-being due to their role as primary care-giver.

Secondly, a key limitation of the study arises from the use of GUS which was of course not designed to meet the specific aims of this research. As has been highlighted throughout the thesis, this at times was a source of frustration when information that was of interest to the research was not collected or was not collected in such a way to be useful to the research. Whilst the use of other datasets such as the MCS may have helped overcome concerns about particular measures, for example in collecting information about the paternal presence at the birth of the child or whether the birth was jointly registered, it is likely that any dataset selected would have brought with it its own set of concerns in this regard. Ultimately, this is perhaps simply an inherent limitation of undertaking secondary analysis. Despite this, the GUS dataset nonetheless offered a wealth of interesting and relevant data allowing the key research questions to be addressed.

A third limitation of the study concerns the available measures of non-resident father involvement. It is possible and indeed quite likely that the measures available in GUS failed to capture the more detailed, intimate aspects of both the father-child and inter-parental relationships which the literature review indicated to be important aspects of non-resident fatherhood and child well-being. This is likely to be a limitation of the use of quantitative data in this context more generally. Ultimately, the study of close relationships does not readily lend itself to quantitative measurement and whilst careful consideration has been given as to the operationalization of these concepts, it may be that some details are lost to quantitative techniques. This has important implications for the findings presented in chapter seven for as noted, the relative lack of statistically significant associations between involvement and enhanced child well-being might be due to the inadequacy of the measures employed rather than an absence of potential benefits in reality.

Finally, the research is limited in that it does not take a longitudinal approach to analysis and as such is not in a position to make claims regarding causality and the direction of associations.

8.6 Future research

On reaching the end of this research project it is important to reflect upon what could follow from the findings in terms of future research. There are many potential future research projects arising from this thesis. Indeed, each of the substantive chapters presented ways in which analyses could be developed in future research. What follows now therefore is not intended to be an exhaustive list of potential future research projects, but rather what I consider to be the most pressing issues arising from the current findings for future research to address.

Firstly, the research findings highlighted differences between non-resident father households headed by a lone mother and those in which the mother has re-partnered in terms of both child well-being and economic and parental resources. The research did not however directly explore differences between these household types and as such is unable to suggest whether it may be the presence of a father figure or simply the presence of a second adult in the household which may be potentially beneficial to child well-being. Future studies could seek to explore this issue directly.

Secondly, due to the manner in which data about non-resident father involvement was collected, the current analysis considered only those cases where there was some form of contact. Future research using GUS could seek to build upon this analysis by assigning those cases where contact did not occur a value of zero on the more detailed measures of contact thus allowing their inclusion in analyses. Such an approach was taken recently by Goisis et al. (2016) in their analysis of the MCS.

Thirdly, the analysis exploring non-resident father involvement is based upon a 'father effects' model which hypothesises that non-resident father involvement influences child well-being. Future research could give consideration to a 'child effects' model as this has received less attention in existing studies. A child's effect model is based on the premise that characteristics of children may influence levels of involvement and as noted, such an approach has indeed found some support in previous research (Hofferth and Pinzon, 2011).

Fourthly, the analyses exploring associations between well-being and involvement were based upon small sample sizes and therefore potentially lacked power to detect statistically significant associations. As such, future research should look to explore these associations using larger sample sizes if possible.

Fifthly, future research could build upon the findings regarding the correlates of contact by considering measures of paternal attitudes in the context of early years non-resident fatherhood. This could offer insights into the nature of some of the associations found in the current research, for example that between parental relationship history and the maintenance of contact and could be helpful in informing policy and practice approaches to engaging with non-resident fathers.

Sixthly, the finding that the age of the child exhibited a statistically significant positive association with levels of involvement was somewhat surprising given that there was little variation within the variable and it would therefore be interesting to explore this association further in future studies.

Seventhly, as noted in the limitations section, the current findings would benefit from consideration from a longitudinal analysis. Generally speaking, it is possible that the influence of non-resident fatherhood is cumulative and it is therefore important that future studies explore this issue longitudinally.

Finally, whilst a theoretically informed approach to the conceptualisation and measurement of child well-being is a key contribution of the research, the developed construct would undoubtedly benefit from inclusion of a subjective aspect of well-being. Given that GUS has now collected data from the study children themselves it is possible to explore development of a construct of well-being which includes children's own perceptions of their well-being. This is an interesting avenue for future research to explore and would be a welcome development of the current research.

And so it can be seen on coming to the end of this thesis, that whilst key questions were answered, many more were raised. Whilst the research findings have offered insights into the complex dynamics underlying the simple dichotomies of father

presence / absence, ultimately the study has merely scratched the surface of the intricate network of associations at play in non-resident father households. In doing so however, the findings offer much in terms of potential avenues for future research, and can undoubtedly be developed further to advance our knowledge and understanding of the complex reality of child well-being in non-resident father households.

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Appendix A: Strengths and Difficulties Questionnaire

Intro
First of all, we would like you to answer some questions about ^*childname*. Don't spend too long
thinking about answers because often your first thoughts are the best.
Please give your answers on the basis of ^*childname's* behaviour over the last six months.
SDQ01
^*Childname* is considerate of other people's feelings
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say
SDQ02
Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
^*Childname* is restless, overactive, cannot stay still for long
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say
SDQ03
Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
^*Childname* often complains of headaches, stomach-aches or sickness
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say
Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
SDQ04
^*Childname* shares readily with other children (treats, toys,
pencils etc.)
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say
SDQ05
Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
^*Childname* often has temper tantrums or hot tempers
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say
SDQ06
Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
^*Childname* is rather solitary, tends to play alone
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say
SDQ07
Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
^*Childname* is generally obedient, usually does what adults

request
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ08

Please give your answers on the basis of ^*Childname*‘s behaviour over the last six months.
^*Childname* has many worries, often seems worried
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ09

Please give your answers on the basis of ^*Childname*‘s behaviour over the last six months.
^*Childname* is helpful if someone is hurt, upset or feeling ill
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ10

Please give your answers on the basis of ^*Childname*‘s behaviour over the last six months.
^*Childname* is constantly fidgeting or squirming
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ11

Please give your answers on the basis of ^*Childname*‘s behaviour over the last six months.
^*Childname* has at least one good friend
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ12

Please give your answers on the basis of ^*Childname*‘s behaviour over the last six months.
^*Childname* often fights with other children or bullies them
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ13

Please give your answers on the basis of ^*Childname*‘s behaviour over the last six months.
^*Childname* is often unhappy, down-hearted or tearful
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ14

Please give your answers on the basis of ^*Childname*‘s behaviour over the last six months.
^*Childname* is generally liked by other children
1 Not true
2 Somewhat true

3 Certainly true
4 Can't say

SDQ15

Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
^*Childname* is easily distracted, concentration wanders
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ16

Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
^*Childname* is nervous or clingy in new situations, easily loses confidence
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ17

Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
^*Childname* is kind to younger children
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ18

Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
^*Childname* often lies or cheats
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ19

Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
^*Childname* is picked on or bullied by other children
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ20

Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
^*Childname* often volunteers to help others (parents, teachers, other children)
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ21

Please give your answers on the basis of ^*Childname*'s behaviour over the last six months.
^*Childname* thinks things out before acting
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ22

Please give your answers on the basis of ^*Childname*‘s behaviour over the last six months.
^*Childname* steals from home, school or elsewhere
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ23

Please give your answers on the basis of ^*Childname*‘s behaviour over the last six months.
^*Childname* gets on better with adults than with other children
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ24

Please give your answers on the basis of ^*Childname*‘s behaviour over the last six months.
^*Childname* has many fears, is easily scared
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

SDQ25

Please give your answers on the basis of ^*Childname*‘s behaviour over the last six months.
^*Childname* sees tasks through to the end, good attention span
1 Not true
2 Somewhat true
3 Certainly true
4 Can't say

Appendix B: Mediating variables questionnaires

SF-12 Questionnaire

Hlmt01

How much does your health limit you in moderate activities such as moving a table, pushing a vacuum
cleaner, bowling or playing golf.

1 Limited a lot
2 Limited a little
3 Not limited at all
4 Can't say

Hlmt02

How much does your health limit you in climbing several flights of stairs.

1 Limited a lot
2 Limited a little
3 Not limited at all
4 Can't say

Hlmt03

During the past four weeks, have you accomplished less than you would like as a result of your
physical health?

1 Yes
2 No

Hlmt04

During the past four weeks, were you limited in the kind of work or other regular activities you do as a
result of your physical health?

1 Yes
2 No

Hlmt05

During the past four weeks, have you accomplished less than you would like as a result of any
emotional problems, such as feeling depressed or anxious?

1 Yes
2 No

Hlmt06

During the past four weeks, did you not do work or other regular activities as carefully as usual as a
result of any emotional problems, such as feeling depressed or anxious?

1 Yes
2 No

Hlmt07
During the past four weeks, how much did physical pain interfere with your normal work, including
both work outside the home and housework?
1 Not at all
2 Slightly
3 Moderately
4 Quite a bit
5 Extremely
SFIntro2
These questions are about how you feel and how things have been with you during the past four
weeks. For each question, please give the one answer that comes closest to the way you have been
feeling.
Hpgn02
How much time during the past four weeks have you felt calm and peaceful?
1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time
Hpgn03
How much of the time during the past four weeks did you have a lot of energy?
1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time
Hpgn04
How much of the time during the past four weeks have you felt down?
1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time

Hpgn05
During the past four weeks, how much of the time has your physical health or emotional problems
interfered with your social activities like visiting with friends, relatives etc?
1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time

Pianta Child-Parent Relationship Scale (conflict questions)
In this section please think about how far each of the statements currently apply to your relationship with ^Childname.
Ppia02
^Childname and I always seem to be struggling with each other
1 Definitely does not apply
2 Not really
3 Neutral
4 Applies sometimes
5 Definitely applies
6 Can't say
Ppia08
^Childname easily becomes angry at me
1 Definitely does not apply
2 Not really
3 Neutral
4 Applies sometimes
5 Definitely applies
6 Can’t say
Ppia10
^Childname remains angry or is resistant after being disciplined
1 Definitely does not apply
2 Not really
3 Neutral
4 Applies sometimes
5 Definitely applies
6 Can’t say
Ppia11
Dealing with ^Childname drains my energy
1 Definitely does not apply

2 Not really
3 Neutral
4 Applies sometimes
5 Definitely applies
6 Can’t say

Ppia12

When ^Childname wakes up in a bad mood, I know we're in for a long and difficult day

1 Definitely does not apply
2 Not really
3 Neutral
4 Applies sometimes
5 Definitely applies
6 Can’t say

Ppia13

^Childname’s feelings towards me can be unpredictable or can change suddenly

1 Definitely does not apply
2 Not really
3 Neutral
4 Applies sometimes
5 Definitely applies
6 Can’t say

Ppia14

^Childname is sneaky or manipulative with me

1 Definitely does not apply
2 Not really
3 Neutral
4 Applies sometimes
5 Definitely applies
6 Can’t say

Confusion, Hubbub, and Order scale questions

The next few questions are about what it’s generally like in your home. Can you tell me how much you agree or disagree with these statements?

Pcha01

“It’s really disorganised in our home”

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree

Pcha02

"You can't hear yourself think in our home"

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree

Pcha03

"The atmosphere in our home is calm"

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree

Pcha04

"First thing in the day, we have a regular routine at home"

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree

Parent Supervision Attributes Profile questionnaire

I'd now like to ask you some questions about looking after ^*childname* when ^*he* is playing outside. Can you tell me how much you agree or disagree with the following statements?

Psup01

"I can trust my child to play by ^*himself* without constant supervision"

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree

Psup02

"I stay close enough to my child so that I can get to him/her quickly"

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree

Psup03

"I think of all the dangerous things that could happen"

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree

Psup04

Still thinking about looking after ^*childname* when ^*he* is playing outside, how much you agree or disagree with these statements?

"I make sure I know where my child is and what he/she is doing"

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree

Psup05

"I keep my child from playing rough games or doing things where ^*he* might get hurt"

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree

Psup06

"I feel very protective of my child"

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree

Appendix C: Supplementary tables for chapter five

Direct effects between social, emotional and behavioural difficulties and control variables		
Variable (*reference category*)	Std. est	Std est / S.E.
Transition in family form	0.102	1.401
Maternal education (*degree*) Vocational qualification	0.068	1.358
Higher grade	0.031	0.365
Standard grade	0.115	1.772
No qualification	0.205	2.444*
Maternal age at birth of child (*under 20*) 20-29	-0.022	-0.186
30-39	-0.116	-1.035
40+	-0.140	0.942
Maternal ethnicity white	-0.640	6.142***
Study child female	-0.266	6.335***
Study child firstborn	0.123	2.483*
Study child's age	-0.020	-0.832

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between cognitive development and control variables		
Variable (*reference category*)	Std. est	Std.est / S.E.
Transition in family form	-0.056	-0.750
Maternal education (*degree*) Vocational qualification	-0.198	-3.785***
Higher grade	-0.170	-2.057*
Standard grade	-0.268	-3.198**
No qualification	-0.666	-7.508***
Maternal age at birth of child (*under 20*) 20-29	0.080	0.750
30-39	0.232	2.038*
40+	0.396	2.752**
Maternal ethnicity white	0.701	6.711***
Study child female	0.179	3.153**
Study child firstborn	0.236	5.164***
Study child's age	0.046	1.950

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between general health and control variables		
Variable (*reference category*)	Std. est	Std.est / S.E.
Transition in family form	-0.032	-0.379
Maternal education (*degree*) Vocational qualification	-0.128	-1.946
Higher grade	0.131	1.310
Standard grade	-0.065	-0.720
No qualification	-0.242	-2.167*
Maternal age at birth of child (*under 20*) 20-29	-0.289	-2.401*
30-39	-0.175	-1.345
40+	-0.044	-0.215
Maternal ethnicity white	0.270	2.120*
Study child female	0.170	3.726***
Study child firstborn	-0.045	-0.887
Study child's age	-0.040	-1.338

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between material situation and control variables		
Variable (*reference category*)	Std. est	Std.est / S.E.
Transition in family form	-0.057	-0.793
Maternal education (*degree*) Vocational qualification	-0.402	-5.712***
Higher grade	-0.213	-1.881
Standard grade	-0.773	-9.147***
No qualification	-1.239	-12.092***
Maternal age at birth of child (*under 20*) 20-29	0.196	1.881
30-39	0.391	3.472**
40+	0.427	2.840**
Maternal ethnicity white	0.624	4.112***
Study child female	-0.116	-2.625**
Study child firstborn	-0.347	-7.134***
Study child's age	-0.001	-0.024

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between maternal mental health and control variables		
Variable (*reference category*)	Std.est	Std.est / S.E.
Transition in family form	-0.142	-2.865**
Maternal education (*degree*) Vocational qualification	-0.002	-0.032
Higher grade	0.011	0.137
Standard grade	-0.092	-1.607
No qualification	-0.223	-3.100**
Maternal age at birth of child (*under 20*) 20-29	-0.063	-0.957
30-39	-0.020	-0.285
40+	-0.059	-0.538
Maternal ethnicity white	-0.031	-0.308
Study child firstborn	0.091	3.079**
Study child female	0.055	1.619

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between household income and controls		
Variable (*reference category*)	Std.est	Std.est / S.E.
Transition in family form	-0.077	0.133
Maternal education (*degree*) Vocational qualification	-0.625	-19.348***
Higher grade	-0.531	-9.113***
Standard grade	-0.807	-17.534***
No qualification	-1.129	-15.707***
Maternal age at birth of child (*under 20*) 20-29	0.350	4.448***
30-39	0.754	10.178***
40+	0.664	6.659***
Maternal ethnicity white	0.466	7.519***
Study child firstborn	0.351	10.975***

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between household chaos and control variables		
Variable (*reference category*)	Std.est	Std.est / S.E.
Household income	-0.189	-10.391***
Maternal mental health	-0.304	-19.604***
Transition in family form	0.009	0.181
Maternal education (*degree*) Vocational qualification	0.023	0.453
Higher grade	0.060	0.786
Standard grade	0.077	1.243
No qualification	0.228	2.942**
Maternal age at birth of child (*under 20*) 20-29	-0.059	-0.705
30-39	-0.076	-0.908
40+	-0.054	-0.455
Maternal ethnicity white	0.391	3.568***
Study child firstborn	-0.149	-3.546***
Study child female	-0.109	-3.343**

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between parental supervision and control variables		
Variable (*reference category*)	Std.est	Std.est / S.E.
Household income	0.070	3.020**
Maternal mental health	-0.006	-0.302
Transition in family form	-0.049	-0.795
Maternal education (*degree*) Vocational qualification	-0.128	-2.792**
Higher grade	-0.070	-0.801
Standard grade	-0.167	-2.558*
No qualification	-0.372	-3.994***
Maternal age at birth of child (*under 20*) 20-29	0.113	1.044
30-39	0.135	1.205
40+	0.122	0.804
Maternal ethnicity white	0.509	4.666***
Study child firstborn	-0.142	-3.786***
Study child female	-0.064	-2.135*

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between mother – child conflict and control variables		
Variable (*reference category*)	Std.est	Std.est / S.E.
Household income	-0.063	-2.898**
Maternal mental health	-0.324	-16.016***
Transition in family form	0.035	0.517
Maternal education (*degree*) Vocational qualification	-0.109	-2.431*
Higher grade	-0.194	-3.144**
Standard grade	-0.062	-0.912
No qualification	0.013	0.876
Maternal age at birth of child (*under 20*) 20-29	-0.089	-0.964
30-39	-0.165	-1.617
40+	-0.177	-1.290
Maternal ethnicity white	0.005	0.965
Study child firstborn	0.108	2.978**
Study child female	-0.130	-3.119**

N=3537 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Appendix D: Correlation matrix for chapter five

ESTIMATED CORRELATION MATRIX FOR THE LATENT VARIABLES					
	SEB	COG	HEALTH	MATERIAL	CONFLICT
SEB	1				
COG	-0.424	1			
HEALTH	-0.439	0.228	1		
MATERIAL	-0.566	0.467	0.305	1	
CONFLICT	0.66	-0.178	-0.154	-0.23	1
CHAOS	0.52	-0.169	-0.164	-0.299	0.348
DEEQVINC	-0.343	0.339	0.242	0.719	-0.121
MATMHLTH	-0.404	0.14	0.187	0.236	-0.339
SUPERVISION	-0.144	0.164	0.156	0.227	-0.022
SOCIAL	0.477	-0.202	-0.209	-0.27	0.315
PEER	0.653	-0.307	-0.326	-0.399	0.312
HYPER	0.681	-0.289	-0.299	-0.386	0.45
EMOTION	0.6	-0.254	-0.263	-0.34	0.396
CONDUCT	0.659	-0.248	-0.247	-0.329	0.609
PICTURE	-0.226	0.533	0.122	0.249	-0.095
VOCAB	-0.314	0.742	0.169	0.347	-0.132
GENHLTH	-0.387	0.201	0.882	0.269	-0.136
DISABILITY	0.309	-0.16	-0.703	-0.214	0.109
HLTHPROB	0.178	-0.093	-0.406	-0.124	0.063
VEHICLE	-0.44	0.34	0.241	0.737	-0.252
GARDEN	-0.277	0.236	0.162	0.484	-0.106
OUTINGS	-0.329	0.274	0.17	0.557	-0.133
INTERNET	-0.326	0.269	0.175	0.575	-0.132

ESTIMATED CORRELATION MATRIX FOR THE LATENT VARIABLES					
	CHAOS	DEEQVINC	MATMHLTH	SUPERVISION	SOCIAL
CHAOS	1				
DEEQVINC	-0.244	1			
MATMHLTH	-0.336	0.175	1		
SUPERVISION	-0.023	0.147	0.022	1	
SOCIAL	0.248	-0.163	-0.193	-0.069	1
PEER	0.214	-0.234	-0.227	-0.118	0.436
HYPER	0.355	-0.233	-0.275	-0.098	0.419
EMOTION	0.312	-0.205	-0.242	-0.087	0.286
CONDUCT	0.344	-0.193	-0.288	-0.073	0.456
PICTURE	-0.09	0.181	0.075	0.088	-0.108
VOCAB	-0.125	0.252	0.104	0.122	-0.15
GENHLTH	-0.145	0.214	0.165	0.138	-0.185

DISABILITY	0.115	-0.17	-0.132	-0.11	0.147
HLTHPROB	0.066	-0.098	-0.076	-0.063	0.085
VEHICLE	-0.245	0.687	0.213	0.157	-0.21
GARDEN	-0.138	0.346	0.109	0.263	-0.132
OUTINGS	-0.183	0.398	0.125	0.129	-0.157
INTERNET	-0.172	0.414	0.136	0.131	-0.155
ESTIMATED CORRELATION MATRIX FOR THE LATENT VARIABLES					
	PEER	HYPER	EMOTION	CONDUCT	PICTURE
PEER	1				
HYPER	0.445	1			
EMOTION	0.392	0.409	1		
CONDUCT	0.394	0.578	0.395	1	
PICTURE	-0.164	-0.154	-0.136	-0.132	1
VOCAB	-0.228	-0.214	-0.189	-0.184	0.395
GENHLTH	-0.287	-0.264	-0.232	-0.218	0.107
DISABILITY	0.229	0.21	0.185	0.174	-0.086
HLTHPROB	0.132	0.121	0.107	0.1	-0.049
VEHICLE	-0.293	-0.3	-0.264	-0.278	0.181
GARDEN	-0.198	-0.189	-0.166	-0.159	0.126
OUTINGS	-0.231	-0.224	-0.198	-0.191	0.146
INTERNET	-0.229	-0.222	-0.195	-0.189	0.143
ESTIMATED CORRELATION MATRIX FOR THE LATENT VARIABLES					
	VOCAB	GENHLTH	DISABILITY	HLTHPROB	
VOCAB	1				
GENHLTH	0.149	1			
DISABILITY	-0.119	-0.621	1		
HLTHPROB	-0.069	-0.358	0.285	1	
VEHICLE	0.252	0.212	-0.169	-0.098	1
GARDEN	0.175	0.143	-0.114	-0.066	0.355
OUTINGS	0.203	0.15	-0.12	-0.069	0.392
INTERNET	0.199	0.155	-0.123	-0.071	0.424
ESTIMATED CORRELATION MATRIX FOR THE LATENT VARIABLES					
	GARDEN	OUTINGS	INTERNET		
GARDEN	1				
OUTINGS	0.27	1			
INTERNET	0.279	0.32	1		

Source: GUS sweeps 1-5 N=3537

Appendix E: Supplementary tables for chapter six

Direct effects between social, emotional and behavioural difficulties and control / mediating variables		
Variable (*reference category*)	Std. est	Std.est / S.E.
Lone mother household	-0.099	0.276
Household income	-0.182	-3.171**
Maternal mental health	-0.169	-2.692**
Household chaos	0.332	7.149***
Parental supervision	-0.044	-0.912
Mother-child conflict	0.548	10.110***
Transition in family form	0.250	1.799
Maternal education (*degree*) Vocational qualification	-0.181	-1.083
Higher grade	-0/165	-0.066
Standard grade	-0.209	-1.022
No qualification	-0.105	-0.533
Maternal age at birth of child (*under 20*) 20-29	-0.110	-0.699
30-39	-0.207	-1.054
40+	-0.028	-0.052
Study child female	-0.325	-3.041**
Study child firstborn	0.225	1.516
Study child's age	0.015	0.318

N=526 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between cognitive development and control / mediating variables		
Variable (*reference category*)	Std. est	Std.est / S.E.
Lone mother household	0.049	0.276
Household income	0.118	1.481
Maternal mental health	-0.011	-0.203
Household chaos	-0.153	-2.741**
Parental supervision	0.169	2.809**
Mother-child conflict	-0.171	-2.726**
Transition in family form	0.250	1.799
Maternal education (*degree*) Vocational qualification	-0.181	-1.083
Higher grade	-0.165	-0.066
Standard grade	-0.290	-1.022
No qualification	-0.105	-0.533
Maternal age at birth of child (*under 20*) 20-29	-0.110	-0.699
30-39	-0.207	-1.054
40+	-0.028	-0.052
Study child female	-0.325	-3.041**
Study child firstborn	0.225	1.516
Study child's age	0.029	0.436

N=526 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied

Direct effects between general health and control / mediating variables		
Variable (*reference category*)	Std. est	Std.est / S.E.
Lone mother household	-0.087	-0.504
Household income	0.072	1.319
Maternal mental health	0.090	1.474
Household chaos	-0.090	-0.785
Parental supervision	0.052	1.000
Mother-child conflict	-0.104	-1.779
Transition in family form	0.075	0.474
Maternal education (*degree*) Vocational qualification	0.370	1.752
Higher grade	0.541	1.597
Standard grade	0.344	1.558
No qualification	-0.031	-0.122
Maternal age at birth of child (*under 20*) 20-29	-0.301	-1.434
30-39	-0.129	-0.534
40+	-0.558	-1.371
Study child female	0.085	0.691
Study child firstborn	-0.325	-2.221*
Study child's age	-0.069	-1.020

N=526 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between material situation and control / mediating variables		
Variable (*reference category*)	Std. est	Std.est / S.E.
Lone mother household	-0.704	-3.676***
Household income	0.359	6.922***
Maternal mental health	0.015	0.275
Household chaos	-0.144	-2.478*
Parental supervision	0.111	2.166*
Mother-child conflict	-0.204	-3.872***
Transition in family form	0.106	0.930
Maternal education (*degree*) Vocational qualification	-0.296	-1.757
Higher grade	-0.089	-0.311
Standard grade	-0.812	-4.797***
No qualification	-1.162	-4.862***
Maternal age at birth of child (*under 20*) 20-29	0.135	0.869
30-39	0.511	2.668**
40+	0.713	1.423
Study child female	-0.264	-2.787*8
Study child firstborn	-0.128	-1.132
Study child's age	0.005	0.107

N=526 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied

Direct effects between maternal mental health and control variables		
Variable (*reference category*)	Std. est	Std. est / S.E.
Lone mother household	-0.264	-1.71
Study child firstborn	0.196	1.93
Maternal age at birth of child (*under 20*) 20-29	-0.043	-0.303
30-39	0.007	0.049
40+	-0.578	-2.094*
Maternal education (*degree*) Vocational qualification	0.104	0.609
Higher grade	0.504	1.453
Standard grade	-0.056	-0.423
No qualification	-0.084	-0.436
Study child's age	0.056	1.134
Study child female	0.12	1.134
Transition in family form	-0.027	-0.248

N=526 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between household income and control variables		
Variable (*reference category*)	Std. est	Std. est /S.E.
Lone mother household	-0.823	-11.072***
Study child firstborn	0.384	4.086***
Maternal age at birth of child (*under 20*) 20-29	0.302	2.216*
30-39	0.576	3.677***
40+	0.317	1.224
Maternal education (*degree*) Vocational qualification	-0.716	-7.377***
Higher grade	-0.638	-3.205**
Standard grade	-0.78	-6.164***
No qualification	-1.019	-5.515***
Study child's age	-0.038	-0.922
Study child female	0.045	0.56
Transition in family form	0.376	4.286***

N=526 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between parental supervision and control variables		
Variable (*reference category*)	Std. est	Std. est. / S.E.
Lone mother household	-0.004	-0.03
Study child firstborn	-0.053	-0.445
Maternal age at birth of child (*under 20*) 20-29	0.1	0.681
30-39	0.062	0.314
40+	-0.084	-0.205
Maternal education (*degree*) Vocational qualification	-0.119	-0.867
Higher grade	-0.331	-1.278
Standard grade	-0.247	-1.567
No qualification	-0.378	-2.058*
Study child's age	0.020	0.418
Study child female	-0.121	-1.369
Transition in family form	0.136	1.503
Maternal mental health	0.040	0.793
Household income	0.039	0.911

N=526 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Direct effects between mother-child conflict and control variables		
Variable (*reference category*)	Std. est.	Std. est. / S.E.
Lone mother household	0.036	0.232
Study child firstborn	0.115	0.983
Maternal age at birth of child (*under 20*) 20-29	0.018	0.124
30-39	0.006	0.031
40+	0.088	0.313
Maternal education (*degree*) Vocational qualification	-0.359	-2.798**
Higher grade	-0.581	-2.355*
Standard grade	-0.435	-2.527*
No qualification	-0.374	-2.399*
Study child's age	-0.037	-0.952
Study child female	-0.202	-2.194*
Transition in family form	-0.125	-1.295
Maternal mental health	-0.287	-6.073***
Household income	-0.117	-1.989*

N=526 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied

Direct effects between household chaos and control variables		
Variable (*reference category*)	Std. est	Std, est / S.E.
Lone mother household	-0.179	-1.322
Study child firstborn	-0.436	-4.404***
Maternal age at birth of child (*under 20*) 20-29	 -0.117	 -0.836
30-39	-0.195	-1.309
40+	0.028	0.123
Maternal education (*degree*) Vocational qualification	 0.023	 0.149
Higher grade	0.284	1.455
Standard grade	0.08	0.444
No qualification	0.198	1.15
Study child's age	0.030	0.850
Study child female	-0.154	-1.965*
Transition in family form	-0.209	-2.547
Maternal mental health	-0.211	-5.016***
Household income	-0.082	-1.647

N=526 Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
Sweep 5 longitudinal weight and survey weights applied.

Appendix F: Correlation matrix for chapter six

ESTIMATED CORRELATION MATRIX FOR THE LATENT VARIABLES					
	SEB	COG	HEALTH	MATERIAL	NRFI
SEB	1				
COG	-0.608	1			
HEALTH	-0.401	0.147	1		
MATERIAL	-0.54	0.435	0.249	1	
NRFI	-0.114	0.098	0.126	-0.016	1
NRFINT	-0.1	0.086	0.111	-0.014	0.879
NRFDC	-0.078	0.067	0.087	-0.011	0.687
NRFIDC	-0.076	0.065	0.084	-0.011	0.668
NRFSTAY	-0.048	0.041	0.053	-0.007	0.423
NRFOUT	-0.084	0.072	0.093	-0.012	0.739
NRFTOYS	-0.09	0.077	0.1	-0.013	0.789
NRFOP	-0.048	0.041	0.053	-0.007	0.421
NRFREL	-0.083	0.071	0.092	-0.012	0.729
CONFLICT	0.745	-0.261	-0.188	-0.31	-0.026
CHAOS	0.538	-0.245	-0.097	-0.303	0.034
SUPERVISION	-0.066	0.195	0.059	0.222	-0.036
EMOTION	0.554	-0.337	-0.222	-0.299	-0.063
SOCIAL	0.382	-0.232	-0.153	-0.206	-0.043
PEER	0.48	-0.292	-0.193	-0.259	-0.055
HYPER	0.618	-0.376	-0.248	-0.334	-0.07
CONDUCT	0.705	-0.428	-0.283	-0.381	-0.08
PICTURE	-0.377	0.62	0.091	0.27	0.06
VOCAB	-0.342	0.562	0.083	0.244	0.055
GENHLTH	-0.328	0.12	0.818	0.203	0.103
DISABILITY	0.292	-0.107	-0.729	-0.181	-0.092
HLTHPROB	0.193	-0.071	-0.482	-0.12	-0.061
VEHICLE	-0.406	0.327	0.187	0.752	-0.012
GARDEN	-0.135	0.109	0.062	0.25	-0.004
OUTINGS	-0.27	0.218	0.124	0.5	-0.008
INTERNET	-0.328	0.264	0.151	0.606	-0.01
MATMHLTH	-0.449	0.14	0.173	0.189	0.159
DEEQVINC	-0.305	0.233	0.094	0.628	0.005
ESTIMATED CORRELATION MATRIX FOR THE LATENT VARIABLES					
	NRFINT	DC	NRFIDC	NRSTAY	NRFOUT
NRFINT	1				
NRFDC	0.603	1			
NRFIDC	0.587	0.459	1		

NRFSTAY	0.372	0.291	0.283	1	
NRFOUT	0.649	0.508	0.494	0.524	1
NRFTOYS	0.693	0.542	0.527	0.334	0.583
NRFOP	0.37	0.289	0.281	0.178	0.311
NRFREL	0.64	0.5	0.487	0.308	0.539
CONFLICT	-0.023	-0.018	-0.017	-0.011	-0.019
CHAOS	0.03	0.024	0.023	0.014	0.025
SUPERVISION	-0.032	-0.025	-0.024	-0.015	-0.027
EMOTION	-0.055	-0.043	-0.042	-0.027	-0.047
SOCIAL	-0.038	-0.03	-0.029	-0.018	-0.032
PEER	-0.048	-0.038	-0.036	-0.023	-0.04
HYPER	-0.062	-0.048	-0.047	-0.03	-0.052
CONDUCT	-0.07	-0.055	-0.054	-0.034	-0.059
PICTURE	0.053	0.042	0.04	0.026	0.045
VOCAB	0.048	0.038	0.037	0.023	0.041
GENHLTH	0.091	0.071	0.069	0.044	0.076
DISABILITY	-0.081	-0.063	-0.062	-0.039	-0.068
HLTHPROB	-0.054	-0.042	-0.041	-0.026	-0.045
VEHICLE	-0.011	-0.008	-0.008	-0.005	-0.009
GARDEN	-0.004	-0.003	-0.003	-0.002	-0.003
OUTINGS	-0.007	-0.006	-0.005	-0.003	-0.006
INTERNET	-0.009	-0.007	-0.007	-0.004	-0.007
MATMHLTH	0.14	0.109	0.106	0.067	0.118
DEEQVINC	0.005	0.004	0.004	0.002	0.004
ESTIMATED CORRELATION MATRIX FOR THE LATENT VARIABLES					
	NRFTOYS	NRFOP	NRFREL	CONFLICT	CHAOS
NRFTOYS	1				
NRFOP	0.332	1			
NRFREL	0.575	0.307	1		
CONFLICT	-0.02	-0.011	-0.019	1	
CHAOS	0.027	0.014	0.025	0.291	1
SUPERVISION	-0.029	-0.015	-0.026	-0.012	-0.032
EMOTION	-0.05	-0.027	-0.046	0.413	0.298
SOCIAL	-0.034	-0.018	-0.032	0.285	0.206
PEER	-0.043	-0.023	-0.04	0.358	0.258
HYPER	-0.055	-0.03	-0.051	0.46	0.333
CONDUCT	-0.063	-0.034	-0.058	0.525	0.379
PICTURE	0.048	0.025	0.044	-0.162	-0.152
VOCAB	0.043	0.023	0.04	-0.147	-0.138
GENHLTH	0.081	0.043	0.075	-0.154	-0.079
DISABILITY	-0.073	-0.039	-0.067	0.137	0.071

HLTHPROB	-0.048	-0.026	-0.044	0.091	0.047
VEHICLE	-0.01	-0.005	-0.009	-0.233	-0.228
GARDEN	-0.003	-0.002	-0.003	-0.078	-0.076
OUTINGS	-0.006	-0.003	-0.006	-0.155	-0.151
INTERNET	-0.008	-0.004	-0.007	-0.188	-0.184
MATMHLTH	0.125	0.067	0.116	-0.307	-0.225
DEEQVINC	0.004	0.002	0.004	-0.127	-0.162
ESTIMATED CORRELATION MATRIX FOR THE LATENT VARIABLES					
	SUPERVISION	EMOTION	SOCIAL	PEER	HYPER
SUPERVISION	1				
EMOTION	-0.036	1			
SOCIAL	-0.025	0.212	1		
PEER	-0.031	0.573	0.312	1	
HYPER	-0.04	0.342	0.424	0.297	1
CONDUCT	-0.046	0.39	0.509	0.338	0.549
PICTURE	0.121	-0.209	-0.144	-0.181	-0.233
VOCAB	0.11	-0.189	-0.131	-0.164	-0.211
GENHLTH	0.048	-0.182	-0.125	-0.157	-0.203
DISABILITY	-0.043	0.162	0.112	0.14	0.181
HLTHPROB	-0.029	0.107	0.074	0.093	0.12
VEHICLE	0.167	-0.225	-0.155	-0.195	-0.251
GARDEN	0.056	-0.075	-0.052	-0.065	-0.084
OUTINGS	0.111	-0.15	-0.103	-0.13	-0.167
INTERNET	0.134	-0.182	-0.125	-0.157	-0.203
MATMHLTH	0.035	-0.249	-0.171	-0.215	-0.277
DEEQVINC	0.09	-0.169	-0.117	-0.147	-0.189
ESTIMATED CORRELATION MATRIX FOR THE LATENT VARIABLES					
	CONDUCT	PICTURE	VOCAB	GENHLTH	DISABILITY
CONDUCT	1				
PICTURE	-0.266	1			
VOCAB	-0.241	0.349	1		
GENHLTH	-0.231	0.074	0.068	1	
DISABILITY	0.206	-0.066	-0.06	-0.597	1
HLTHPROB	0.136	-0.044	-0.04	-0.395	0.352
VEHICLE	-0.286	0.203	0.184	0.153	-0.136
GARDEN	-0.095	0.068	0.061	0.051	-0.045
OUTINGS	-0.191	0.135	0.122	0.102	-0.091
INTERNET	-0.231	0.164	0.148	0.123	-0.11
MATMHLTH	-0.316	0.087	0.079	0.141	-0.126
DEEQVINC	-0.215	0.145	0.131	0.077	-0.068

ESTIMATED CORRELATION MATRIX FOR THE LATENT VARIABLES					
	HLTHPROB	VEHICLE	GARDEN	OUTINGS	INTERNET
HLTHPROB	1				
VEHICLE	-0.09	1			
GARDEN	-0.03	0.188	1		
OUTINGS	-0.06	0.376	0.125	1	
INTERNET	-0.073	0.456	0.152	0.303	1
MATMHLTH	-0.083	0.142	0.047	0.095	0.115
DEEQVINC	-0.045	0.472	0.157	0.314	0.381
ESTIMATED CORRELATION MATRIX FOR THE LATENT VARIABLES					
	MATMHLTH	DEEQVINC			
MATMHLTH	1				
DEEQVINC	0.121	1			

Source: GUS sweeps 1-5 N=526